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## Title

Field of Application for:

Flamebreak 660 Ply Faced and FF660 MDF Faced Doorset Ranges in Timber Based Door Frames

For 60 minutes Fire Resistance

## Report No.:

FEA/F02141 Revision M

## Issue Date:

30th April 2024

## Valid Until:

9th February 2028

## Job Reference:

WF534966

## 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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# 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 UKCA or CE 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
- Electrically powered hold-open devices: Test Standard EN 1155
- Door co-ordinators: Test Standard EN 1158
- 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.
- As a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Pacific Rim Wood Ltd
- 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 configuration requirements.

No item of hardware should be within 200mm of another item of hardware unless there is test evidence to demonstrate 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. However, only 1No manufacturer should be considered per doorset application.

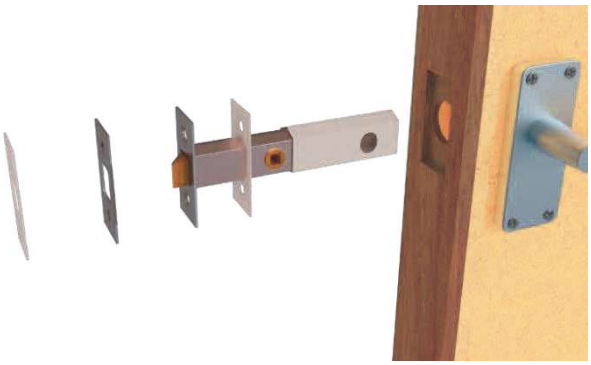
The door perimeter intumescent seal specifications are documented in conjunction with the leaf envelope size limitations in section 4.5.

| Item | Location | Product/Manufacturer |
|---|---|---|
| Hinges | Under both hinge blades | 1mm Interdens – Dufaylite Developments Ltd.<br>1mm Therm-A-Strip – Intumescent Seals Ltd.<br>1mm G30 – Sealmaster Ltd.<br>1mm Graphite – Sealed Tight Solutions<br>1mm NOR910 – Norsound Ltd. |
| Lock/latches | Single Point Engagement:<br>Under forend & keep and lining all sides of the mortice (single and double leaf doorsets) | 1mm Interdens – Dufaylite Developments Ltd.<br>1mm Therm-A-Strip – Intumescent Seals Ltd.<br>1mm G30 – Sealmaster Ltd.<br>1mm Graphite – Sealed Tight Solutions<br>1mm NOR910 – Norsound Ltd. [1] |
| | Multi Point Engagement | See section 10.4.2 for details |
| Top pivots & & bottom straps | Fitted underneath the body footprint of top pivots and bottom straps | 1mm Interdens – Dufaylite Developments Ltd.<br>1mm Therm-A-Strip – Intumescent Seals Ltd.<br>1mm G30 – Sealmaster Ltd.<br>1mm NOR910 – Norsound Ltd. |
| Flush bolts | Encasing the entire body of the flush bolt including the back surface of the face plate | 2mm Interdens – Dufaylite Developments Ltd.<br>2mm Therm-A-Strip – Intumescent Seals Ltd.<br>2mm G30 – Sealmaster Ltd.<br>1mm Graphite – Sealed Tight Solutions<br>1mm NOR910 – Norsound Ltd. |

**Notes:**

1. The maximum latch forend size for use with 1mm NOR910 is 155mm high by 25mm wide.

**Example of hinge protection detail**



**Example of lock & latch protection detail**

Gaskets must be fitted where required by supporting data, i.e. test evidence or Certifire certificates. If gaskets are not required by the supporting data but they are required within this Field of Application, the requirements of this Field of Application take precedence.

Where it is stated that intumescent is not required for a particular element of hardware, it is permitted to use up to 2mm thick MAP, Interdens or graphite-based gasket tested for the particular application [as appropriate for the hardware]. It is the opinion of Warringtonfire that the additional protection will not detract from the fire resistance performance under test conditions.

## 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<br>• Handle<br>• Hinges<br>• Self-closing device (closer) |
| ULSASD | • Hinges<br>• Self-closing device (closer) |
| DASD | • Top pivot & bottom strap<br>• Floor spring self-closing device (closer) |
| LSADD | • Latch<br>• Handle<br>• Hinges<br>• Self-closing device (closer)<br>• Flush bolt |
| ULSADD | • Hinges<br>• Self-closing device (closer)<br>• Flush bolt[1] |
| DADD | • Top pivot & bottom strap<br>• Floor spring self-closing device (closer) |

Note:

1. Flush bolts (and other edge mounted hardware apart from hinges) are not permitted for doorsets that are fitted with perimeter intumescent seals spaced 5mm apart, see relevant data sheet in section 4.5 for intumescent specifications BS4 and ED1.

## 10.4 Latches & Locks

### 10.4.1 Single Point Engagement

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** All permitted in section 4.5.2.

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

| Element | Manufacturer & Product Reference |
|---|---|
| Locks & latches | 1. Zoo-Vier DIN sash lock ref: ZDL7255RSS (tested in WF503863 in Flamebreak FF660 MDF faced with stiles trimmed by 5mm)<br>2. IR mortice latch (tested in WF374929 in Flamebreak 660 Ply faced with stiles completely removed)<br>3. E*S tubular mortice latch |

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

**Single leaf doorsets**

| Element | Specification |
|---|---|
| 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 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 | 150mm high by 25mm wide by 4mm thick |
| Maximum body dimensions | 80mm high by 100mm wide by 18mm 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 800 – 1200mm from the threshold.

### 10.4.2 Latches & Locks – Multi Point Engagement

These items are suitable in the following applications only, based on the results of test WF408272:

**Leaf options:** Flamebreak 660 Ply Faced only

**Configurations:** LSASD

The table below details the tested multi point latch that is approved.

| Element | Manufacturer & Product Reference |
|---|---|
| Locks & latches | 1. Winkhaus AV2-F |

The tested Winkhaus 3pt Autofire multipoint lock may be utilised with the Flamebreak 660 Ply faced design only, the internal framing (stiles and rails) must remain in place to the full dimensions shown in section 5.1.1, the locks must be installed with the tested intumescent protection detailed below. All 3 locking points must be engaged when the leaf is in the closed position.

| Element | Specification (mm) |
|---|---|
| Forend | 1770 high by 20 wide |
| Centre Lock Keep | 234 high x 24 wide |
| Top & Bottom Keeps | 174 high x 24 wide |
| Top & Bottom Lock Bodies | 113mm high by 42mm wide by 16mm thick |
| Lock Cylinder | A lock cylinder must always be installed |
| Intumescent protection | Encasing middle lock body – STS 'ST60 kit'.<br>Encasing top and bottom hook bodies – 110 x 30 x 1mm thick STS graphite gasket<br>Under all lock keeps – 20 x 1mm thick STS graphite gasket<br>Under Forend – STS ST10x2mm full length in the Eurogroove |
| Materials | All parts essential to the lock must remain as tested |
| Location | Centre lock nib to be installed between 950mm and 1100mm from the threshold |
| Maximum Leaf Size (mm) | See section 4.5.10 |
| Configurations | Latched, single acting, single leaf only |

**Note:**

1. When a multi-point latch is fitted, the leaf perimeter edge intumescent must meet the specification in section 4.5.10.
2. The centre, top and bottom keep plates must be the same as those tested, as supplied by the manufacturer.
3. The top end of the forend of the multi point latch must not finish closer than 70mm from the leaf top horizontal edge.
4. The bottom end of the forend of the multi point latch must not finish closer than 135mm from the leaf bottom horizontal edge.

### 10.4.3 Latches & Locks – Edge Protector Specification

The following specification of lockset is required when using edge protectors:

| Element | | Specification |
|---|---|---|
| Maximum forend and strike plate dimensions | CS Group | 155mm high by 25mm wide by 4mm thick |
| | Yeoman | 125mm high x 25mm wide x 4mm thick |
| Maximum body dimensions | CS Group | 150mm high by 100mm wide by 18mm thick |
| | Yeoman | 100mm high x 100mm wide x 20mm thick |
| Intumescent protection - Under latch forend and keep and fully encasing the entire latch body | | 1. 1mm thick MAP Lorient Polyproducts Ltd.<br>2. 2mm thick Therm-A-Line Intumescent Seals Ltd.<br>3. 2mm thick Therm-A-Flex Intumescent Seals Ltd.<br>4. 2mm thick Therm-A-Line Intumescent Seals Ltd. - additional 2 no. layers (6mm thick in total) to rear face of latch body |
| 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 |

### 10.4.4 Cylinders

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** LSASD and LSADD

The table below details the tested cylinders that are approved.

| Element | Manufacturer & Product Reference |
|---|---|
| Cylinder | • UAP Kinetica 3 Euro cylinder (WF408272) |

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

- Where required for use with either single or multi point latches, the cylinder must be constructed of either brass or steel with a melting point in excess of $800^0$C.
- The cylinder must be compatible with the lock/latch.
- 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:
    - Due to the intumescent materials that must be fitted around the body of locks, maximum permitted clearance between leaf and cylinder is 3mm to each edge.

## 10.5 Handles

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** – All permitted in section 4.5.2

The table below details the tested handles that are approved.

| Element | Manufacturer & Product Reference |
|---|---|
| Handles | • Fab & Fix 'Windsor' footprint 208 x 28mm wide<br>• Zoo 'Radius' lever on rose – ref: SSS-ZCS2030SS<br>• Union steel lever type – 54 diameter rose |

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 handle 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 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:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** LSASD, ULSASD, LSADD, ULSADD

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

| Element | Manufacturer & Product Reference |
|---|---|
| Hinges | • Zoo Hardware, size 101 high x 30 mm wide each blade<br>• Royde & Tucker ref: H102, size 100 high x 35 mm wide each blade<br>• Eurospec ref: HIN1433, size 100 high x 31 mm wide each blade |

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

| 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 wood screws per blade |
| Materials: | Steel or stainless steel |

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

| Element | | Specification | |
|---|---|---|---|
| Hinge positions: | If 3 hinges are required: | Top | 100 –180mm from the head to top of hinge |
| | | 2nd | 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 |
| | If 4 hinges are required: | Top | 100-180mm 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 | 150 - 250mm from the foot of leaf to bottom of hinge |
| Intumescent protection: | | See section 10.2 | |

**Note:**

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.

## 10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers
- Floor springs with top pivots and bottom straps.

Automatic doorset self-closing devices such as transom mounted, and offset pivots used with floor springs are not considered acceptable for use with the Flamebreak 660 Ply faced or FF660 MDF faced doorset ranges.

### 10.7.1 Overhead Face Fixed Closer

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** LSASD, ULSASD, LSADD, ULSADD

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

| Element | Manufacturer & Product Reference |
|---|---|
| Overhead face-fixed closers | • Rutland TS3204<br>• Dorma TS71<br>• Dorma TS83V<br>• Arrone AR1500<br>• Briton 121CE<br>• Record DFA127[2] |

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

- Certifire approved overhead face-fixed closers for 60-minute fire resistance applications on 54mm thick timber door and timber frames.

**Notes:**

1. 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.
2. Where the Record DFA127 is specified, the closer body must be fixed to the door frame head – it is not permitted to fit the closer body to the leaf face. The frame head section must be a minimum of 35mm thick excluding any stop, the stop must be a minimum of 20mm high and may be integral or planted on. The door frame jambs may be to the same specification in section 7.1 which may result in differing frame element dimensions at the head and jambs.

### 10.7.2 Floor Spring Self Closing Device

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced only

**Configurations:** DASD, DADD

Components with the following specification are deemed acceptable.

- Certifire approved floor spring self-closers for 60-minute fire resistance applications on 54mm thick timber door and timber frames.

**Note:**

For intumescent protection requirements, see section 10.2.

## 10.8 Flush Bolts

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced only

**Configurations:** LSADD

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded and the components are fitted opposite the edge fitted with intumescent strips:

- 203mm 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. Alternatively, the hardware manufacturers tested gaskets may be used. See note under the table in section 10.3.

**Flush bolt installation and intumescent protection**

## 10.9 Non-Essential Hardware

### 10.9.1 Pull Handles

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** DASD, DADD

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, there must be no more than 1mm clearance between the hole and stud.

The above scope of application is provided as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

### 10.9.2 Push Plates & Kick Plates

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** All configurations

Push plates and kick plates with the following specification are deemed acceptable as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

Approved specification:

- Polymeric or metal (excluding aluminium) face-fixed hardware such as push plates and kick plates up to 2mm thick 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.

### 10.9.3 Security Viewers

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF faced.

**Configurations:** All configurations

Components with the following specification are also deemed acceptable.

- 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.
- Must be fitted no closer than 100mm to door edge, glazing or any other hardware component.

### 10.9.4 Door Selectors

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced only

**Configurations:** All double leaf door configurations

These may be freely applied, provided that they are not invasive in the leaf edges or door frames, and they do not interfere with the self-closing action of the door leaf. Products that are invasive will require fire resistance test/assessment evidence to support their use which would need to be separately submitted to Warringtonfire or evaluation and inclusion in this report to permit their use with this door design.

### 10.9.5 Environmental Seals

A number of different environmental seals have been successfully tested as part of the Flamebreak 60 minute doorset designs. For example, the STS ST1009 weather seal was successfully tested in report WF408272.

On this basis, silicon based flame retardant acoustic, weather and dust seals (for example those referenced above or Lorient IS1212, IS1511, IS7025, IS7060 or Sealed Tight Solutions Ltd. ST1009) may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

### 10.9.6 Threshold Drop Seals

Threshold drop seals can be fitted to both the Flamebreak 660 Ply faced and FF660 MDF faced designs, only when an Exitex MXS/15-67 threshold plate is also installed as detailed in section 7.2. The full requirements of section 7.2 must be complied with, including the requirement for the ST202 gasket fitted to the upper surface of the plate.

The drop seal must be mounted into a full depth rail at the bottom of the door leaf (i.e. the bottom rail cannot be removed when installation of a drop seal is proposed).

Note: if a rebated drop seal is fitted to the doorset then flush bolts, if approved, may not also be fitted to the bottom of the doorset.

The following components are deemed acceptable, recessed into the bottom of leaves.

| Product | Manufacturer |
|---|---|
| LAS8005si /0935A00 | Lorient Polyproducts Ltd. |
| LAS8001si | Lorient Polyproducts Ltd. |
| RP8Si | Raven Products Ltd. |
| NOR810, NOR810S, NOR810dB+ | Norsound Ltd. |
| STS 422 | Sealed Tight Solutions Ltd |

### 10.9.7 Air Transfer Grilles

#### 10.9.7.1 Lorient Polyproducts Ltd Air Transfer Grilles

Lorient Polyproducts Ltd air transfer grilles are manufactured using modular elements, contained within the system is a sodium silicate based intumescent compound, which expands multi directionally in volume when exposed to elevated temperatures, forming a fire resistant seal.

##### 10.9.7.1.1 Installation Requirements

Margins to the leaf edges will remain as detailed for glazing within section 6 and the position of the grille has been dictated by the pressure regime tested in the proving evidence (generally below mid-height). The area occupied by the air transfer grille must be deducted from the area of glazing if both elements are to be installed within a door leaf.

| Part No. | Maximum Area ($m^2$) | Maximum Aperture Dimensions (h x w - mm) |
|---|---|---|
| LVN25 | 0.25 | 540 x 540 |
| LVV40* & LVC40* | 0.11 | 360 x 360 |

* Grilles may be fitted up to a maximum height of 2200mm from the threshold.

The Lorient Polyproducts Ltd air transfer grilles must be installed in accordance with the manufacturer's installation details, which include steel screws through either the perimeter frame of the grille or integral flanges and the grille must to be bedded onto an 8mm thick bead of Lorient Intumescent Sealant with a fillet of sealant on both faces at the junction between the liner and the air transfer grille - full details can be obtained from Lorient Polyproducts Ltd.. Grilles are manufactured using modular elements, finished grilles are available from 100 - 600mm in height and width; the maximum area for each grille type in the table takes precedence. Full details must be obtained from Lorient Polyproducts Ltd.

Optional cover grilles are available and may be used with no detrimental effect on the fire resistance of the grilles.

### 10.9.7.2 Pyroplex Air Transfer Grilles

The following Pyroplex air transfer grilles have been assessed as acceptable for use with the Flamebreak 60 design.

The grilles must be fitted a minimum of 100mm from the edge of the door leaf and a minimum of 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille(s) must be deducted from the percentage of glazing and letter plate, if both elements are fitted. The grilles may be fitted up to a maximum height of 2200mm from the threshold.

| **Part No.** | **Dimensions** (mm) | **Air Flow** (sq. cm) | **Compatible Faceplates** |
|---|---|---|---|
| ATG 1500 | 150 x 150 | 153 | FP1500 |
| ATG 1503 | 150 x 300 | 307 | FP1503 |
| ATG 1300 | 300 x 300 | 614 | FP1300 |
| ATG 2251 | 112 x 225 | 161 | FP2251 |
| ATG 2250 | 225 x 225 | 323 | FP2250 |

The Pyroplex air transfer grilles must be installed in accordance with the manufacturer's installation details, which include a 6mm thick hardwood (excluding Beech (Fagus sylvatica)) aperture liner and Pyroplex intumescent mastic applied around the perimeter of the grille. Full details can be obtained from Pyroplex Ltd.

### 10.9.7.3 Mann McGowan Air Transfer Grilles

The table below details the tested and therefore approved air transfer grilles within the doorset design.

Configurations: All leaf configurations

| **Manufacturer & Product Reference (Test evidence)** | **Maximum Dimensions (mm)** | **Fixing Details** | **Intumescent Protection** |
|---|---|---|---|
| Mann McGowan Pyrogrille 100<br>(WF391351) | 598 w x 596 h | Fixings 75mm x 4.3mm drywall screws, nom 100mm from each corner applied through the vertical edges of the grille into the leaf. | Mann McGowan Pyromas A intumescent acrylic sealant.<br>Cartridge gunned around the perimeter of each grille on both faces |

In all instances the following specification must be followed:

- The aperture shall be lined with a hardwood (not Beech *fagus species)* minimum density 640kg/m$^3$ aperture liner which is to be 6 - 8mm thick and adhered with PU or PVA adhesive and pinned with steel pins. The steel pins shall be positioned nominally 50mm from corners, no greater than 250mm centres and positioned centrally to the aperture liner.
- The air transfer grille must be fitted centrally to the leaf thickness.
- The size of any air transfer grille shall be no greater than 602mm high x 602mm wide or 0.36m$^2$.
- Air transfer grilles shall be rectilinear, other shapes are not permitted.

- Air transfer grilles shall be positioned such that the centre of the grille is 500mm ±200mm from the bottom of the leaf.
- Air transfer grilles shall not be closer than 200mm from the edge of the leaf or adjacent apertures within the leaf.
- It is possible to include a surface mounted ferrous or non-ferrous metal cover over the grille once installed providing it is applied with screws that are no longer than 20mm in length and when applied they are affixed into the leaf core material, i.e. not applied into the aperture liner or the grille itself.
- The area occupied by the air transfer grille must be deducted from the area of glazing if both elements are fitted.

### 10.9.8 Letter Boxes/Plates

Based on the proven capability of the Flamebreak 660 Ply Faced and FF660 MDF Faced door designs to tolerate apertures for glazing, components with the following specification are deemed acceptable.

- Pacific Rim Wood have requested specific reference to the Lorient Polyproducts RJ008 letterplate as detailed in CF5688, it is the opinion of Warringtonfire that these letter plates are acceptable for use subject to the following.
    - Letter boxes/plates must be Certifire approved products, for 60 minutes in doorsets with solid timber door leaves. Restrictions relating to size, location and intumescent protection around the letter box/plate detailed within the associated Certifire certificate must be complied with.
    - The area of the letter plate (and air transfer grille if present) plus any glazing must not exceed the total permitted area for glazing in the leaf.

### 10.9.9 Knockers, Numerals & Decals

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced and FF660 MDF Faced

**Configurations:** All configurations

Components with the following specification are also deemed acceptable as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

Approved specification:

- Steel, stainless steel, aluminium or bronze knockers, numerals or decals may be surface-fixed or bolted through the door leaf, 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. If through fixed, there must be no more than 1mm clearance between the hole and stud.

### 10.9.10 Surface Fixed Barrel Bolts

These items are suitable in the following applications only:

**Leaf options:** Flamebreak 660 Ply Faced only

**Configurations:** Double Leaf Configurations

It is permitted to fit a surface fixed barrel bolt to the top closing corner of a double leaf doorset providing the bolt does not require removal of material from the leaf or door frame and does not interfere with the permitter intumescent seals. The bolt may be no longer than 450mm.