Chiltern INTERNATIONAL FIRE

Chiltern DYNAMICS

**Global Assessment of:**

**Pacific Rim Wood Ltd**

FLAMEBREAK

**30 Minute Fire Resisting Doorsets**

**Report No: FEA/F98164 Revision J**

**Valid From: 8 August 2011**
**Valid Until: 8 August 2016**

committed to excellence

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## 1 Introduction

This document constitutes a global assessment to collate the fire resistance test evidence for Pacific Rim Wood Ltd 'Flamebreak' 30 minute fire resisting doorsets, a construction manufactured by P.T. Kutai Timber of Indonesia. The assessment uses established extrapolation and interpretation techniques in order to extend the scope of application. It does this by determining the limits for the design, based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance performance, if the elements were to be tested in accordance with BS 476: Part 22: 1987.

## 2 General Description of Construction

The construction of 'Flamebreak' 30 minute door leaves includes the following basic components in the design:

| **Component** | **Species/type** | | **Configuration** (all dimensions in mm) | **Min. density** (kg/m³) |
|---|---|---|---|---|
| **Core** | Parasorianthes falacateria or Albisia falcatta or Ochroma pyramidale | | 3 layers of lamels laid in alternate directions – grooved to accept the stiles and rails. | 140-360 (average 210) |
| **Stiles** | 'Mixed tropical hardwood' | Leaf size ≥ 2440 (h) x 1220 (w) | 1 No 26-36 thick (depending on facing thickness) x 35 deep, incorporating a 9 x 9 tongue to locate into the core material. | 480 |
| | | Leaf size ≤ 2135 (h) x 915 (w) | 1 No 26-36 thick (depending on facing thickness) x 35 deep | 480 |
| **Top & Bottom Rails** | 'Mixed tropical hardwood' | | 1 No 26-36 thick (depending on facing thickness) x 35 deep, incorporating a 9 x 9 tongue to locate into the core material. | 480 |
| **Facings** | Various timber based products – see section 10 for details. | | Between 3.6 – 9mm – see section 10 for details. | various |
| **Lippings** | Hardwood | | 6 mm to 18 mm | 640 |

The 'Flamebreak' design is supplied with stiles and rails to the specification in the table above. The stiles and bottom rail may either remain in position or be removed for manufacturing since the testing has evaluated constructions with and without these elements. The top rail must remain in position.

**Notes**:

1. Care must be taken to observe the restrictions that apply to the 'Flamebreak' 30 design depending on the type and thickness of the facing material used. The restrictions are referenced in the data sheets in appendix D.
2. Flamebreak 430 (4mm plywood face) may be supplied without any perimeter framing at dimensions greater than 2745mm (h). It is permitted to use Flamebreak 430 at these dimensions without any perimeter framing **only** as a latched, single acting, single leaf door with 25 x 4 Type 617 intumescent (floor springs and pivots are not permitted). See appendix D for the relevant data sheet.

## 3 Leaf Sizes

The approval for increased leaf dimensions is based on the tests listed in appendix A and takes into account the margin of over performance above 30 minutes integrity for the design and the characteristics exhibited during test. Data sheets specifying the maximum approved leaf sizes and graphs showing the permitted gradient between maximum height and width are contained in appendix D.

Doorsets with reduced dimensions are deemed to be less onerous. Therefore, doors with dimensions that are less than those tested and stated in appendix D, may be manufactured.

## 4 Configurations

Based on the test evidence listed in appendix A, this assessment covers the following doorset configurations:

| Abbreviation | Description |
|---|---|
| LSASD & ULSASD | Latched & unlatched single acting single doorset |
| DASD | Double acting single doorset |
| LSASD+OP & ULSASD+OP | Latched & unlatched single acting single doorset with overpanel |
| DASD+OP | Double acting single doorset with overpanel |
| LSADD & ULSADD | Latched & unlatched single acting double doorset |
| DADD | Double acting double doorset |
| LSADD+OP & ULSADD+OP | Latched & unlatched single acting double doorset with overpanel |
| DADD+OP | Double acting double doorset with overpanel |

Unequal leaf double doorsets are covered by this assessment with no restriction on the smaller leaf dimension.

## 5 Leaf Size Adjustment

'Flamebreak' 30 door leaves may be altered as follows:

| Element | Reduction |
|---|---|
| Leaf | Door leaves of this design have been tested in single and double leaf configuration both with and without stiles and bottom rails. This therefore permits the door leaves to be reduced in height and / or width without restriction, providing that reduction in height is made from the bottom edge only and the top rail remains in position |
| Lipping | The dimensions stated in section 9 may be reduced by 20% for fitting purposes. |
| Head rail | If no lipping is fitted to the head of door the integral head rail may only be trimmed by a maximum of 3mm for fitting purposes |

## 6 Overpanels

### 6.1 Solid

Overpanels of the same construction as the door leaves may be used either flush with the leaf heads or when separated by a transom. In either case the overpanel must be fully contained within the door frame (see following diagram). The following parameters apply:

- All 'Flamebreak' 30 designs may be used in conjunction with an overpanel fitted with a transom.
- It is only permitted to use a flush overpanel with the 'Flamebreak' 30 design when the door sections are faced with 4mm Plywood.

If a transom is used it must be to the same specification as the timber door frame (see section 8). Door frame joints must utilise one of the following four methods: mortise and tenon joints; half lapped joints; mitre joints; butt joints (see section 8.2).

All methods require joints to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws. Butt joints must be additionally bonded with urea formaldehyde or equivalent.

Overpanels must be fixed by the following method:

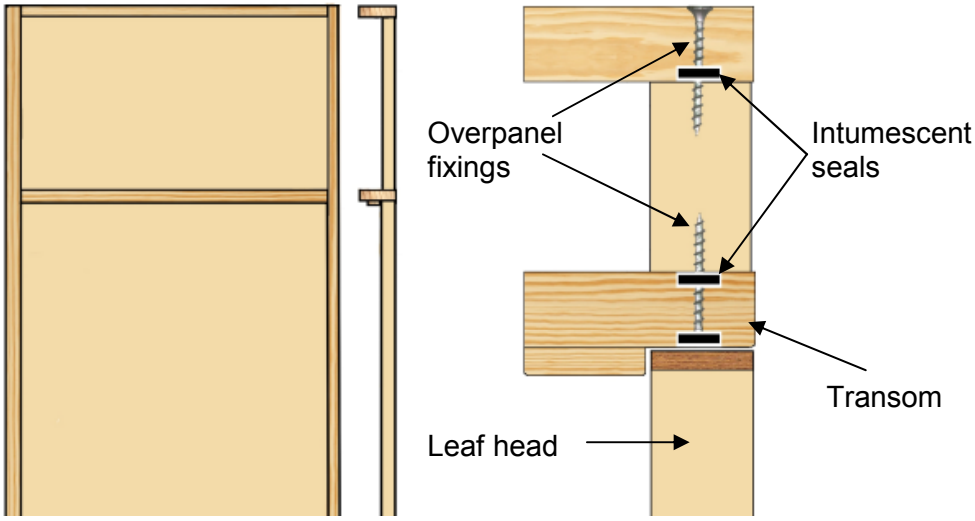
- Steel screws inserted through the rear of the door frame, passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.

Maximum overpanel heights are as follows.

- Single doorsets - 2000mm
- Double doorsets - 1500mm

The intumescent seals specified for the jambs in appendix D, must also be fitted to all edges of the overpanel. The seals may be fitted in the overpanel edges or alternatively in the frame reveal.

It is permitted to include a glazed aperture within the overpanel providing the glazing is within the parameters given in section 7 and the overpanel is fitted with a transom.




**Note:** Drawing is representative of doorset construction only, actual construction must be as the text within this document specifies.

### 6.2 Glazed Fanlights

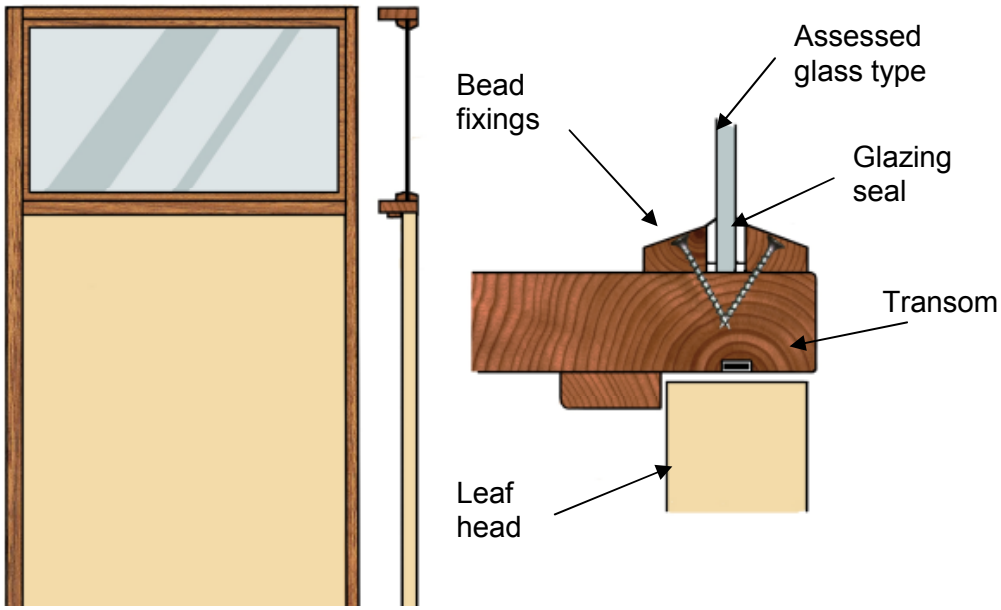
Timber frame doorsets including a transom may include a glazed fanlight. The timber frame and glazing beads must be hardwood with a minimum density of 640 kg/m$^3$, whilst the frame section must be a minimum of 70mm x 44mm. Timber door frame and transom construction must comply with the specification contained in section 8.

The maximum assessed fanlight dimensions are detailed in the table below, subject to the following restriction:

- The glazing system and glass must be able to demonstrate adequate performance when tested as a window or screen in accordance with BS 476: Part 22: 1987 or BS EN 1634-1: 2000, at the pane dimensions to be installed.

| **Configuration** | **Height** (mm) | **Width** (mm) |
|---|---|---|
| Single & double doorsets | ≤600 | Overall door width |

MDF and softwood frame doorsets are not assessed for glazed fanlights.




**Note:** Drawing is representative of doorset construction only, actual construction must be as the text within this document specifies.

# 7 Glazing

## 7.1 General

The testing conducted on the 'Flamebreak' 30 design has demonstrated that the design is capable of tolerating glazed apertures, whilst providing a margin of over performance. Glazing is therefore acceptable within the following parameters.

The maximum assessed glazed area for all configurations is 1.15m². The glazing system must be one of the following tested proprietary systems.

## 7.2 Assessed Glazing Systems

| Glazing System | Manufacturer | Maximum Aperture Dimensions ($m^2$) |
|---|---|---|
| 1. Fireglaze 30 | Sealmaster Ltd | 1.15 |
| 2. Firestrip 30 | Hodgsons Sealants Ltd | 1.15 |
| 3. Therm-A-Strip | Intumescent Seals Ltd | 1.15 |
| 4. Pyroglaze 30 | Mann McGowan Ltd | 0.72 |
| 5. 8193 | Pyroplex Ltd | 0.72 |
| 6. 30049 | Pyroplex Ltd | 0.72 |
| 7. 30054 | Pyroplex Ltd | 0.72 |
| 8. System 36 | Lorient Polyproducts Ltd | 0.72 |
| 9. Flexible Figure 1 | Lorient Polyproducts Ltd | 0.72 |

## 7.3 Assessed Glass Products

| Glass types (trade names) | Manufacturer |
|---|---|
| 1. 6 & 7mm Pyroshield | Pilkington Group Ltd |
| 2. 6 & 7mm Pyroshield II | Pilkington Group Ltd |
| 3. 6mm Pyran S | Schott Glass Ltd |
| 4. 6mm Pyrostem | CGI Ltd |
| 5. 7mm Pyroguard | CGI Ltd (limited to 0.87$m^2$) |
| 6. 7mm Pyrobelite | AGC Flat Glass Europe |
| 7. 7mm Pyrodur | Pilkington Group Ltd |
| 8. 10mm Pyrodur | Pilkington Group Ltd |
| 9. 11mm Pyroguard | CGI Ltd (limited to 0.52$m^2$) |
| 10. 11mm Pyranova 15-S2.0 | Schott UK Ltd |
| 11. 12mm Pyrobelite | AGC Flat Glass Europe |
| 12. 15mm Pyrostop | Pilkington Group Ltd |
| 13. 16mm Pyrobel | AGC Flat Glass Europe |

**Note:**
1. All glass types must be fitted strictly in accordance with the manufacturer's tested details/installation requirements.
2. Glass types 9-13 are full insulating in terms of the criteria set out in BS 476: Part 20: 1987

## 7.4 Glazing Beads & Installation

Glazing beads must be from hardwood as specified in the following table:

| Material | Profile | Min Density ($kg/m^3$) | Application |
|---|---|---|---|
| Hardwood | Splayed | 640 | All proprietary systems detailed in 7.2 and appendix B |
| Hardwood | Square | 640 | Proprietary systems 1,2 & 3 as specified in 7.2 and glass types 5-13 as specified in 7.3 |

See appendix B for square and splayed bead profile options. A 6 – 10mm thick square aperture liner is permitted for use with square beads providing it is constructed from hardwood of min density 640 $kg/m^3$ and glued in position using an adhesive type specified for the lippings (see section 12).

It is permitted to use a flush bead (i.e. a bead with no bolection return) with a chamfer providing all other details meet the specification given for the square bead option in the table above.

Glazing bead fixings must be retained in position with 50mm long x 2mm diameter steel pins or 40mm long No 6-8 screws, inserted at 35-40º to the vertical at no more than 50mm from each corner and at 150mm maximum centres. Pneumatically fired pins are acceptable providing they meet the specification given above.

Glazed openings must not be less than 100mm from any door edge. Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 80mm between apertures. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.

False timber beads may be bonded to the glass face with an intumescent mastic/silicon, or a 0.5-2mm thick self adhesive intumescent tape/strip. Suitable glass for this application is restricted to types 5-13.

Timber for glazing beads must be straight grained joinery quality, free from knots, splits and checks.

Sectional drawings detailing the tested and approved proprietary glazing systems are contained in appendix B.

## 7.5 Improved Security Bead

A combined bead and lining can be used to deny access to fixings from one side of the door leaf to improve security.

All glazing details are to meet the specification given in section 7.2, 7.3 and 7.4 unless otherwise stated below:

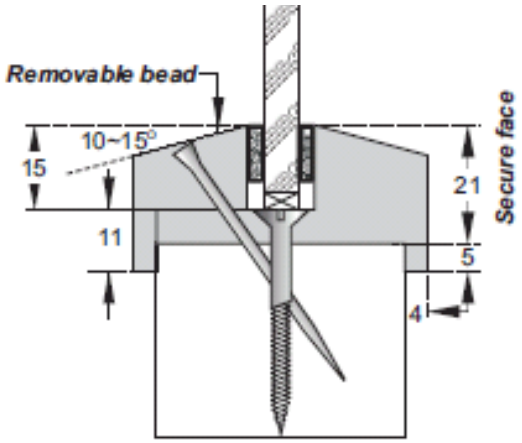
The aperture in the door must be lined using minimum 26mm thickness combined bead and lining in hardwood of minimum 640$kg/m^3$ density.

The combined bead and lining is bonded to the aperture in the door using the adhesives types approved for lippings (see section 12) and reinforced using No. 6-8 50mm long screw fixings located centre thickness of the door at 200mm centres.

The bead to the non secure face must be retained in position with 50mm long x 2mm diameter steel pins or 50mm long No 6-8 screws, inserted at 35-40º to the vertical. Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given above.

The bead profile must be appropriate for the glazing system selected.

See diagram below for details:




## 8 Door Frames

### 8.1 Door Frame Construction

Door frames for 'Flamebreak' 30 may be timber or MDF as follows:

| **Material** | **Min Section** (mm) | **Min Density** (kg/m³) | **Application** | **Leaf Size Range** (mm) |
|---|---|---|---|---|
| Softwood/hardwood* | 70 x 32 | 450 | All configurations | All |
| MDF | 70 x 30 | 700 | All configurations | All |

*If the doorset features a transomed overpanel, the door frame must be softwood or hardwood (not MDF) with a minimum section of 70mm x 32mm and of the minimum densities stated above.

All door frame timber must be to class J30 as specified in BS EN 942: 2007 provided any defects are adequately repaired (see section 18 for details).

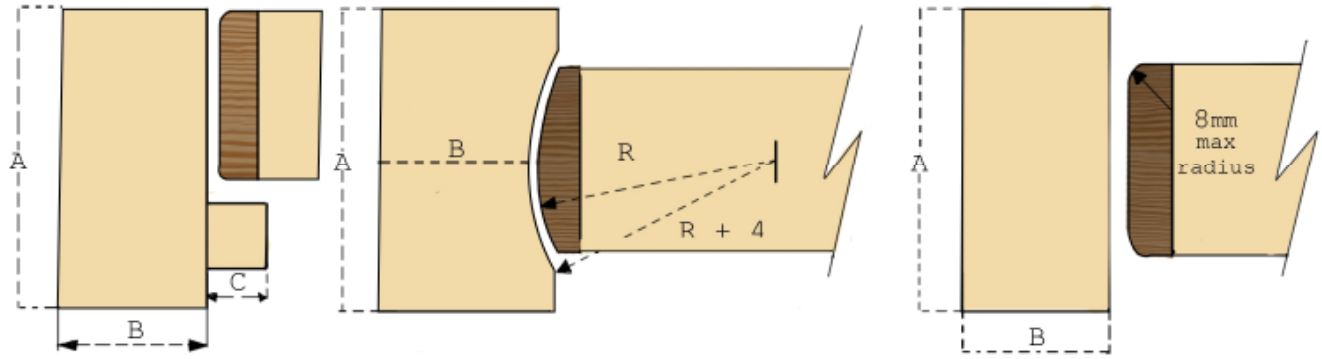
A 12mm deep planted stop is adequate for single acting frames whilst double acting frames may be scalloped or square. If frames are square, the maximum radius to the corners of the leaf is 8mm.

Frame joints may be mortice and tenoned, mitred, half lapped or butted and with no gaps (see section 8.2). All jointing methods require mechanical fixing with the appropriate size ring shank nails or screws.

All methods require joints to be tight, with no gaps, and nailed or screwed.

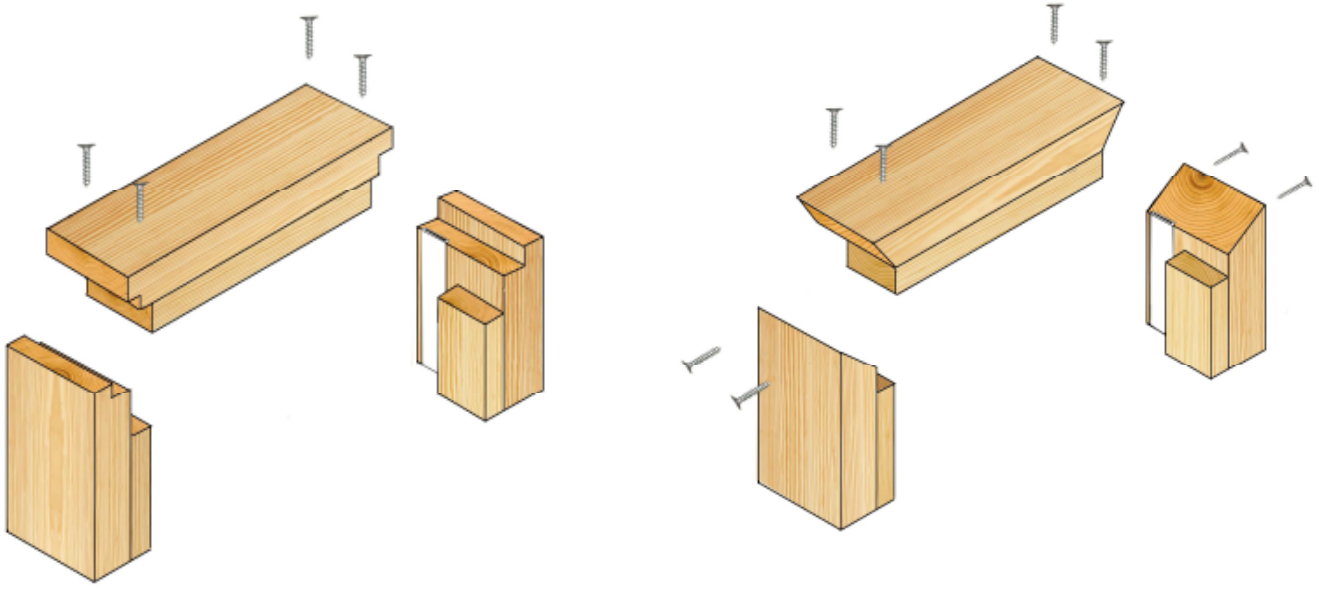
The following diagram depicts the assessed frame profiles and dimensions:

A = min 70mm B = min 30 - 32mm (see table above) C = min 12mm
R = radius from floor spring 8mm max radius to create a maximum 2mm edge profiling

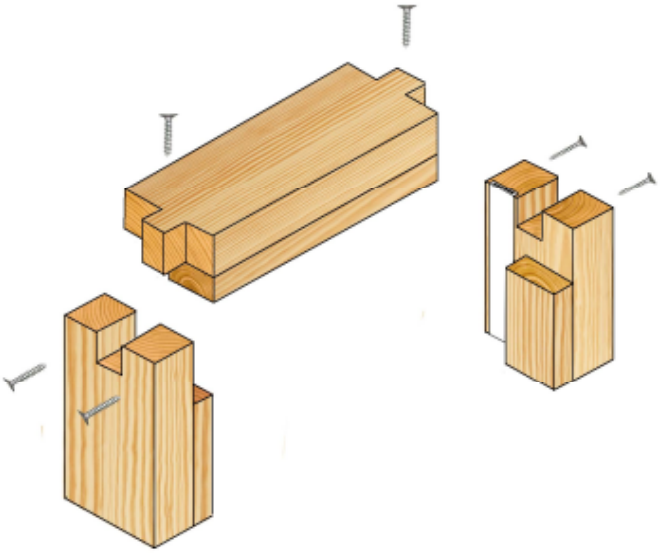



**Standard** **Scalloped** **Profiled edges**

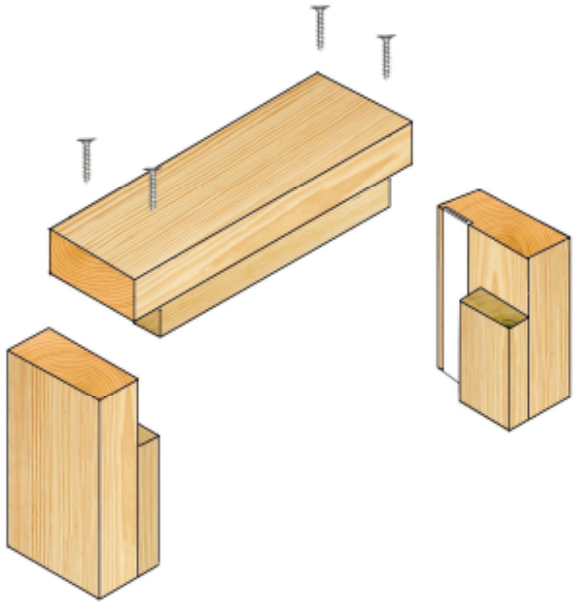
## 8.2 Door Frame Joints



Half Lapped Joint Mitre Joint



Mortise and Tenon Joint

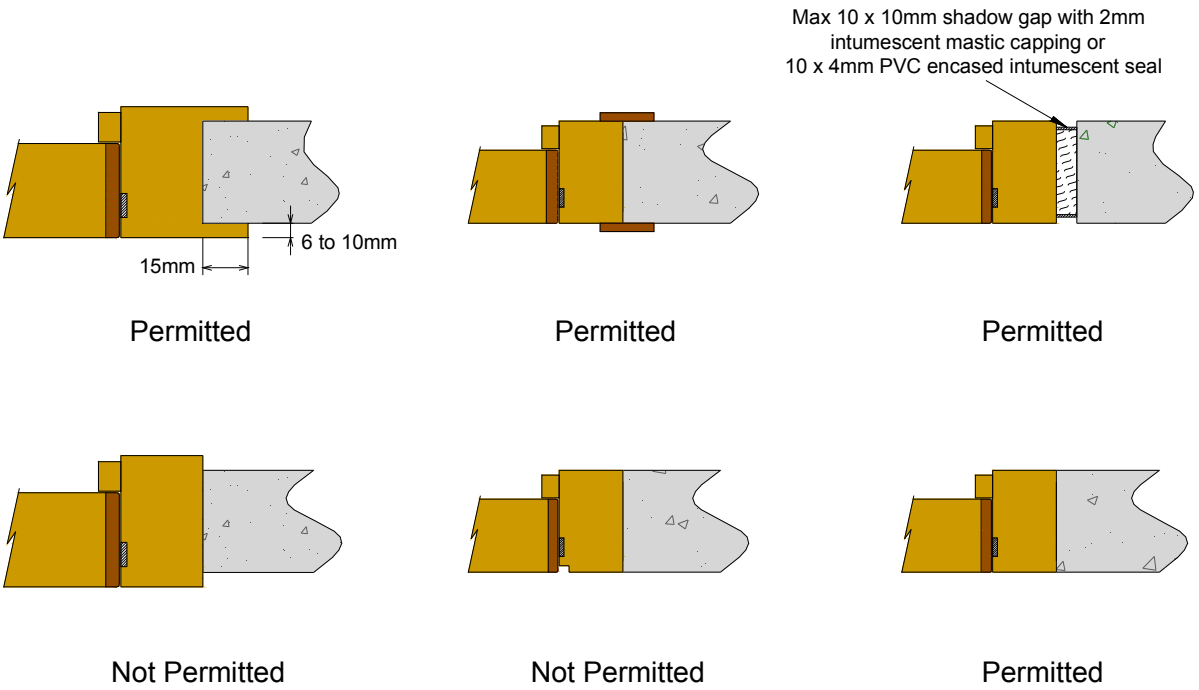


Butt Joint

**Note:** Drawing is representative of each type of door frame joint, actual construction in terms of intumescent seal location and material etc. must be as the text within this document specifies

## 8.3 Door Frame Construction

The following diagram depicts acceptable and unacceptable door frame installations:




Permitted | Permitted | Permitted

Not Permitted | Not Permitted | Permitted

# 9 Edging Materials

## 9.1 Timber Lippings

'Flamebreak' 30 must be lipped in accordance with the following specification:

| Material | Size (mm) | Min Density (kg/m³) |
|---|---|---|
| Hardwood must be straight grained joinery quality, free from knots, splits and checks. | 1. Flat = 6 – 18 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 8.1) | 640 |
| | 2. Rounded = 8 – 20 thick with a radius matching the distance between leaf edge and floor pivot (see section 8.1) | |
| | 3. Rebated = 20-30 thick with a 12mm deep equal rebate | |

**Notes:**

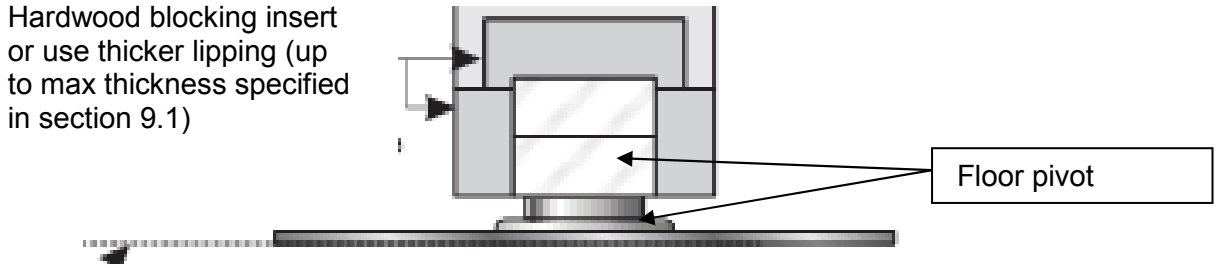
- Single doorsets are not permitted with rebated vertical edges
- Single or double doorsets without overpanels cannot have rebated heads or jambs
- Single & double doorsets without stiles only require lipping on the vertical edges
- If no lipping is fitted to the head of door the integral head rail may only be trimmed by a maximum of 3mm for fitting purposes
- Doorsets with flush overpanels must be lipped on the vertical edges and additionally at the bottom edge of the overpanel and top edge of the doors
- Where applied, lippings along the vertical edges must over-run the lippings along the horizontal edges
- Double doorsets without flush overpanels are permitted with square or rebated meeting edges
- Single and double doorsets with flush overpanels may use a rebated overpanel junction **or** rebated meeting edges but must not use both concurrently.

## 9.2 Hardwood Blocking for Pivots

The following option is permitted for lipping the bottom of doors that are to receive pivot fixings and are to be used in severe duty locations (diagram below). It is not necessary to introduce additional blocking at the head of the door because of the presence of the integral top rail.

The hardwood insert may be a maximum of 15mm high by a length suitable for the hardware to be installed plus a maximum of 50mm (not full door width). The hardwood insert must be a maximum of 28mm wide and fitted centrally in the leaf leaving 8mm of leaf material on either face. The inserted block must be bonded on all contact faces using adhesives approved for the application of lippings (see section 12). Alternatively lippings in accordance with details shown in section 9.1 may be used.

**Cross section through bottom of leaf fitted onto floor spring and pivot**



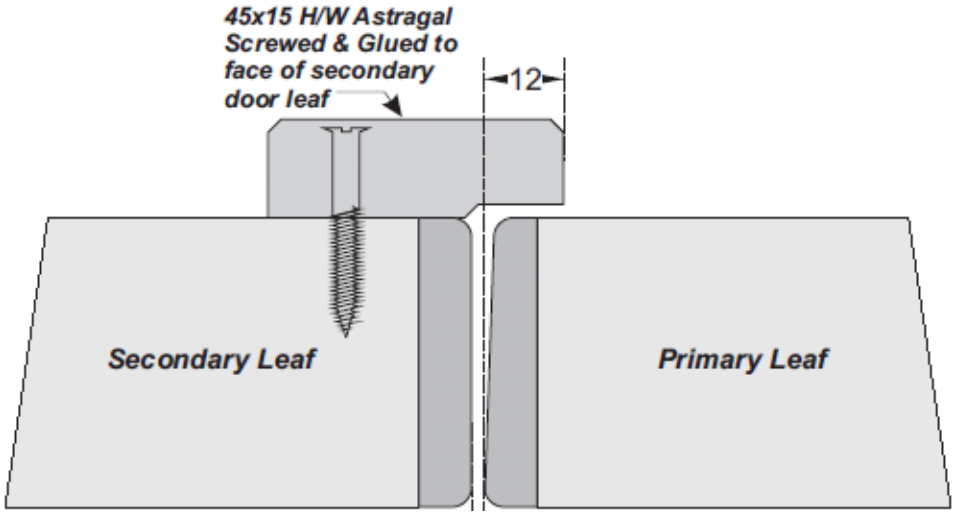

## 9.3 Meeting Stile Astragals

Generally fire doors should be able to open simultaneously. However, where additional performances are required (e.g. acoustic performances) it may be necessary to provide for sequential opening.

The astragal detail may be used where these conditions apply, without adverse influence on existing fire test/assessment data.

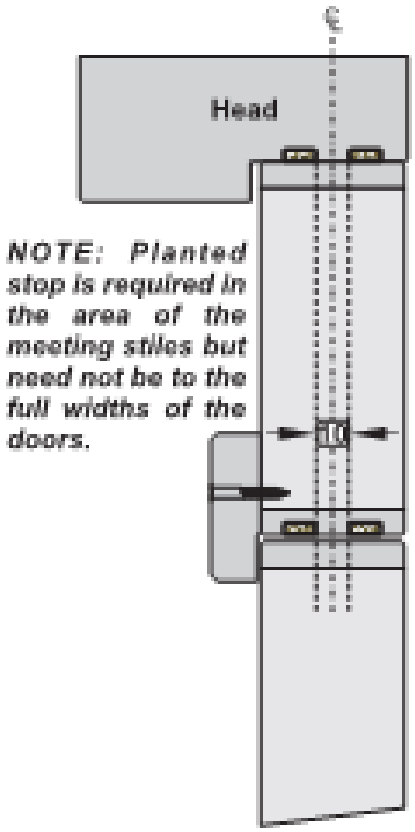
Astragals can be applied to both door leaves and may be profiled for aesthetic effect providing they meet the minimum specification given below.

The hardwood for the astragal must be hardwood of the same minimum density being used for the lipping material. See following diagram.




## 9.4 Planted Stop for Flush Overpanels

For single acting doorsets with flush overpanels it may be necessary to provide for a planted stop detail at the junction between the overpanel and the leaf heads. The planted stop is to have the same specification as that given for the meeting edge astragal in section 9.3. See following diagram for recommended installation detail:




## 10 Leaf Facing Materials

### 10.1 Structural Facings

The primary facing material for the 'Flamebreak' 30 doorset design is 3.6mm or 6mm thick plywood or 6mm thick MDF. Facings at this thickness are deemed as being structural and hence substitutions for alternative facings are limited. However, further testing has also demonstrated adequate performance with alternative materials. The tested and assessed alternative facings are summarised as follows:

| **Facing Materials** | **Thickness** (mm) | **Minimum density** (kg/m$^3$) |
|---|---|---|
| Plywood | 3.6, 6, 9 | 520 - 610 |
| Chipboard | 3.6, 6, 9 | 500 - 650 |
| MDF | 3.6, 6, 9 | 710 – 760 |

In each case, the overall leaf thickness must remain a minimum of 44mm; therefore the core thickness will be increased or decreased proportionally (26 – 36.8 mm thick) in relation to the facing thickness.

### 10.2 Decorative and Protective Facings

The following additional facing materials are permitted for this door design since they would degrade rapidly under test conditions without significant effect:

| Facing Material | Maximum Permitted Thickness (mm) |
|---|---|
| Paint | 0.5 |
| Timber veneers | 2 |
| PVC/plastic laminates | 2 |
| Decorative paper / non-metallic foil | 0.4 |

**Notes:**

1. Metallic facings are not permitted except for push plates and kick plates (see section 14.7)
2. The door leaf thickness may be reduced by a total maximum of 0.5mm for calibration purposes in order to accommodate the chosen finish
3. Materials must not conceal intumescent strips
4. PVC/plastic laminates must not be applied to the edges of leaves

### 10.3 Grooves

For doorsets with 6 - 9mm facings, 3mm deep x 3mm wide feature grooves may be machined either horizontally or vertically in the facing. The grooves must not be closer than 100mm to each other or to any edge.

A maximum number of 4 No. vertical and 4 No. horizontal grooves are permitted perpendicular to one another (permitted to intersect) providing all other details meet the specification given in the table above.

Feature grooves are not permitted with flush overpanel configurations.

## 11 Intumescent Materials

It is important that the type, size and fitting detail for the intumescent seals remains as tested. These products can often exhibit significantly different characteristics, which could alter the performances obtained during test, and therefore they must not be considered interchangeable, irrespective of whether the product has been tested and the seal dimensions are maintained.

The intumescent materials tested for this doorset design are as follows:

| Application | Location | Product/Manufacturer |
|---|---|---|
| Edge seals | Fitted in the frame jambs or leaf edges | 1. PVC encapsulated Palusol 100 – Mann McGowan<br>2. Pyroplex – Pyroplex Ltd<br>3. Type 617 – Lorient Polyproducts Ltd |
| Hinges | Under both blades (for leaves over 2400mm high) | 1. 1mm Interdens – Dufaylite Developments Ltd<br>2. 1mm MAP paper – Lorient Polyproducts Ltd<br>3. 1mm Pyrostrip 300 – Mann McGowan Fabrications Ltd<br>4. 1mm Therm-A-Strip – Intumescent Seals Ltd<br>5. 1mm G30 – Sealmaster Ltd |
| Lock/latches | Under forend & keep for double doorsets or if the forend or keep > 150mm (h) up to the maximum assessed dimension | 1. 1mm Interdens – Dufaylite Developments Ltd<br>2. 1mm MAP paper – Lorient Polyproducts Ltd<br>3. 1mm Pyrostrip 300 – Mann McGowan Fabrications Ltd<br>4. 1mm Therm-A-Strip – Intumescent Seals Ltd<br>5. 1mm G30 – Sealmaster Ltd |
| Top pivots & flush bolts | Lining all sides of the mortices | 1. 2mm MAP paper - Lorient Polyproducts Ltd<br>2. 2mm Interdens - Dufaylite Developments Ltd<br>3. 2mm G30 – Sealmaster Ltd<br>4. 2mm Therm-A-Strip - Intumescent Seals Ltd<br>5. 2mm Therm-A-Flex - Intumescent Seals Ltd |
| Cableways | Lining the base of the groove (see section 14.14) | 1. 2mm MAP paper - Lorient Polyproducts Ltd<br>2. 2mm Interdens - Dufaylite Developments Ltd<br>3. 2mm G30 – Sealmaster Ltd<br>4. 2mm Therm-A-Strip - Intumescent Seals Ltd<br>5. 2mm Therm-A-Flex - Intumescent Seals Ltd |

The seal specification for each configuration is shown in appendix D.

## 12 Adhesives

The following adhesives must be used in construction:

| Element | Product |
|---|---|
| Facings | Melamine or PVA |
| Lipping | Urea formaldehyde, resorcinol formaldehyde, PU |
| Core | PVA |

## 13 Tested Hardware

The following hardware has been successfully incorporated in the tests on this design:

1. Royde & Tucker H105 steel butt hinges.
2. 100mm x 32mm Stainless steel butt hinges.
3. Dorma TS71 & TS73V & TS83V overhead closers.
4. Henderson Hardware 63mm tubular mortice latch with aluminium lever handles.
5. E*S Hardware 88mm tubular mortice latch with aluminium lever handles.
6. Nemef latch (235mm x 20mm forend) with stainless steel lever handles.

## 14 Additional & Alternative Hardware

### 14.1 Latches and locks

Latches and locks must either be as tested, or alternatively components with the following specification are acceptable:

| **Element** | **Dimensions** (mm) |
|---|---|
| **Maximum forend and strike plate dimensions:** | 235 high by 24 wide by 4 thick |
| **Maximum body dimensions:** | 18 thick by 100 wide by 165 high. |
| **Intumescent protection:** | See section 11 |
| **Materials:** | All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel or brass (with melting point ≥ 800°C) |

## 14.2 Hinges

'Flamebreak' 30 leaves must be hung on a minimum of 3 hinges. Leaves over 2400mm high must fit 4 hinges. Leaves over 3000mm must fit 5 hinges (for this detail use the location of the top and bottom hinges in the table below and space the remainder equally between the top and bottom). Hinges with the following specification are acceptable:

| Element | | Specification | |
|---|---|---|---|
| Blade height: | | 90 - 120mm | |
| Blade width (excluding knuckle): | | 30 - 35mm | |
| Blade thickness | | 2.5 - 4mm | |
| Fixings: | | Minimum of 4 No. 30 long No. 8 or No.10 steel wood screws per blade | |
| Materials: | | Steel or stainless steel or brass (melting point = or > 800$^{o}$C) | |
| Hinge positions: | Leaf dimensions <2400mm: | Top | 200 -220mm from the head of the leaf to the centreline of the hinge |
| | | 2$^{nd}$ | Minimum 200mm from centreline of top hinge to centreline of second hinge OR equally spaced between top and bottom hinge |
| | | Bottom | 220 - 300mm from the foot of the leaf to the centreline of the hinge |
| | Leaf dimensions >2400mm: | Top | 200 - 220mm from the head of the leaf to the centreline of the hinge |
| | | 2$^{nd}$ | Minimum 200mm from centreline of top hinge to centreline of second hinge |
| | | 3$^{rd}$ | Equally spaced between 2$^{nd}$ hinge and bottom hinge |
| | | Bottom | 220 - 300mm from the foot of the leaf to the centreline of the hinge |
| Intumescent protection: | | See section 11 | |

## 14.3 Automatic Closing

Automatic closing devices, must either be as tested or components of equal specification that have demonstrated contribution to the required performance of these types of 30 minute doorset design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1: 2000.

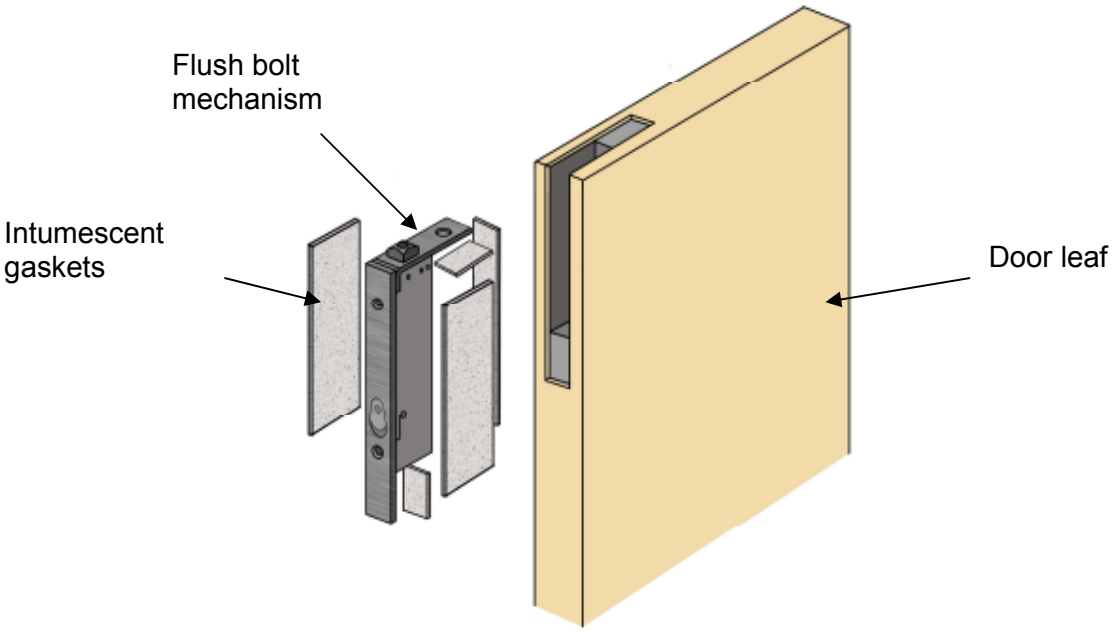
**Note**: The top pivots to floorspring assemblies must be protected with 2mm thick intumescent gasket (see section 11) or alternatively the manufacturers tested intumescent gaskets.

## 14.4 Flush Bolts

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:

- 200mm long x 20mm deep x 20mm wide.

Flush bolts must be steel or brass and the mortice must be as tight to the mechanism as is compatible with its operation. All edges of the mortice must be protected with intumescent gaskets as specified in section 11. Alternatively the hardware manufacturers tested gaskets may be used. See diagram below for example of intumescent protection to flush bolt.




## 14.5 Surface Fixed Barrel Bolts

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

## 14.6 Pull Handles

These may be surface-fixed to the door leaf provided that they are steel or brass and the length is limited to 1200 mm between the fixing points. No additional intumescent protection is required provided that the hole for the bolt through the leaf is tight.

## 14.7 Push Plates/Kick Plates

Face-fixed hardware such as push plates and kick plates may be fitted to the doorsets provided that their fitting requires the removal of no part of the door leaf. These items of hardware must not amount to more than 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.

### 14.8 Door Selectors

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.

### 14.9 Door 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 bedded in to a tested intumescent mastic.

### 14.10 Panic Hardware

Panic hardware may be fitted, provided that its installation does not require the removal of any timber from the leaf, stop or frame reveal and it in no way interferes with the self-closing action of the door leaf.

### 14.11 Air Transfer Grilles

#### 14.11.1 General

Air transfer grilles may be fitted providing the product has suitable test evidence to BS 476: Part 22: 1987 or BS EN 1634-1: 2000 that demonstrates a minimum 30 minutes integrity performance when installed within a timber based doorset of comparable thickness. Margins to the leaf edges will remain as detailed for glazing 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 0.2m$^2$ and must be deducted from the percentage of glazing, if both elements are fitted.

#### 14.11.2 Pyroplex Air Transfer Grilles

The following Pyroplex air transfer grilles have been assessed as acceptable for use with the Flamebreak 30 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, 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 aperture liner and Pyroplex intumescent mastic applied around the perimeter of the grille. Full details can be obtained from Pyroplex ltd.

### 14.12 Acoustic, Weather and Dust Seals

Silicon based flame retardant acoustic, weather and dust seals (e.g. Norseal 710, Lorient IS1212, IS1511, IS7025, IS7060) may be fitted to this doorset design with out 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.

### 14.13 Threshold Seals

The following types of automatic threshold drop seals may be recessed in to the bottom rail of leaves to this design with out compromising the performance:

| | |
|---|---|
| Lorient Polyproducts | IS8010si |
| Pemko | 411 - AR |
| Raven | RP8Si |
| Athmer | Sound-Ex Duo L-15 |
| Norseal | 810 |

### 14.14 Cable-Way

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 cable-way to facilitate electro-magnetic closing/latching mechanisms. The cable-way must be concealed in the following way:

1. A hole drilled centrally through the leaf of maximum 10mm diameter.
2. The cable for the electronic closing/latching mechanisms must be no more than 2mm smaller in diameter than the hole through the leaf.
3. The cable for the electronic closing/latching mechanism must be PVC encased
4. Cable ways are only permitted for use with latched, single leaf, single acting doorsets with maximum leaf dimensions of 2100mm (h) x 900mm (w).
5. 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.

This approval is subject to the hardware manufacturer having the appropriate test evidence for the product for use with this type of 30 minute construction. Test evidence generated in steel doorsets is not acceptable. Any tested intumescent gaskets for the lockset, closing mechanism, receiver plate, cable loops etc. must be replicated.

### 14.15 Letter Boxes/Plates

Letter boxes/plates may be fitted providing the product can demonstrate contribution to the required performance of this type of 30 minute doorset design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1: 2000 and installed at the proposed location, within a timber based doorset of comparable thickness. Margins to the leaf edges must remain as specified for glazing.

## 15 Door Gaps

Door edge gaps, threshold gaps, and alignment tolerances, must fall within the range shown in the following table:

| Location | Dimension |
|---|---|
| Door edge gaps | A minimum of 2mm and a maximum of 4mm. |
| Alignment tolerances | Leaves must not be proud of each other or from the door frame by more than 1mm. |
| Threshold | 10mm between bottom of leaf and top of floor covering |

## 16 Structural Opening

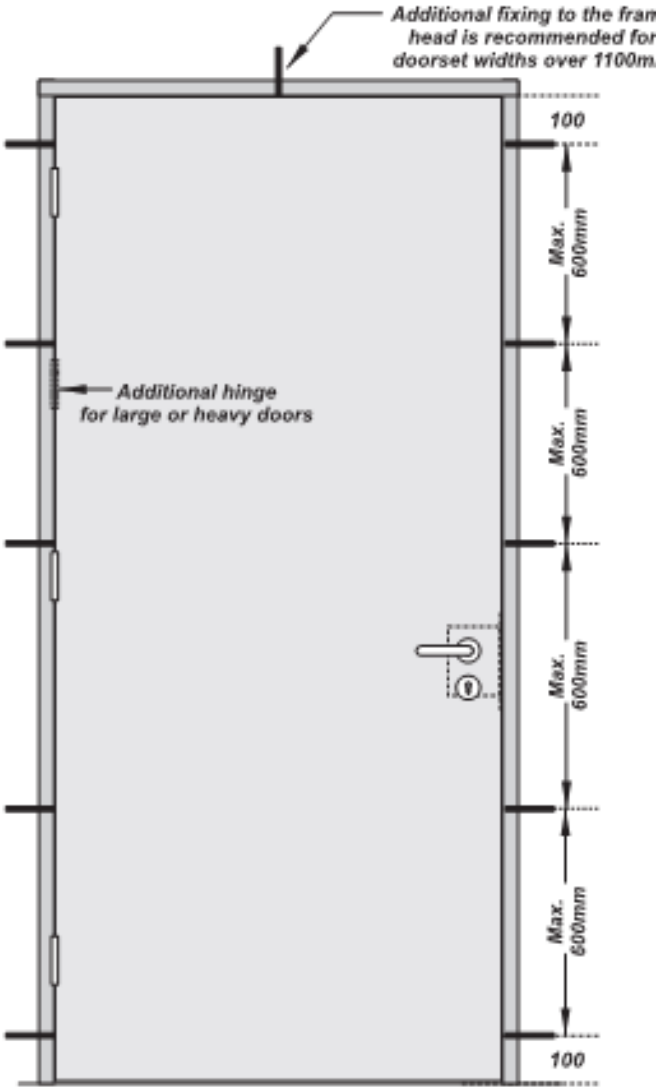
The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

## 17 Fixings

The positioning of installation fixings in height should be planned to avoid conflicts with hardware, sealing systems and other building elements.

- A top fixing must be located within 100mm from the underside of the head
- A bottom fixing must be located 100mm from the bottom of the jamb
- Intermediate fixings must be located at centres of not more than 600mm
- The minimum number of fixings in height must be:
    1. Doorset height up to 2000mm = 4 No.
    2. Doorset height 2000-2500mm = 5 No.
    3. Add 1 No. fixing for each further 500mm increase in door height
- The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 40mm.
- For storey height doorsets a top fixing must be provided within a 100mm from the underside of the frame head with a further top fixing positioned 100mm from the underside of the transom rail (or bottom edge of the over panel if a flush overpanel design is used)
- It is not necessary to fix the frame head, although packers must be inserted. However, for doorset widths in excess of 1100mm the use of an additional fixing centre width of the doorset at the head position is recommended
- MDF frames are more flexible than timber frames. To reduce the risk of frame distortion during fixing it is strongly recommended that the dimension for fixing centres between intermediate fixings is reduced from 600mm to a maximum of 500mm

See following diagram for illustration on fixings for a typical timber door frame doorset installation:




*Timber frame fixing locations illustrated.*

## 18 Classification of Timber

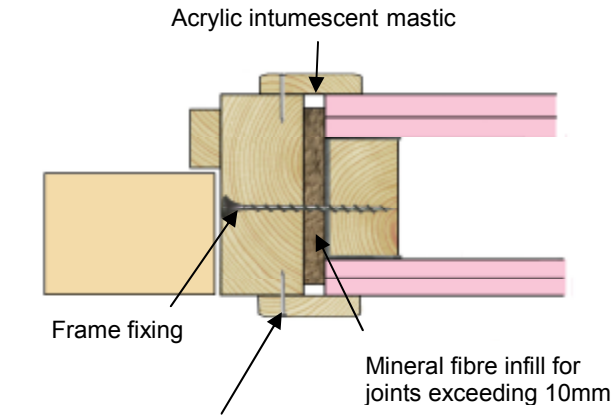
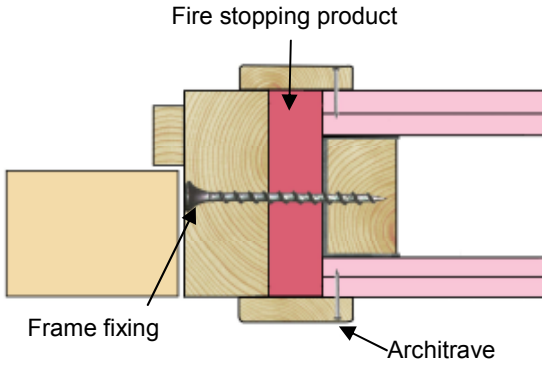
All timber used for door frames must meet or exceed class J30 as specified in BS EN 942: 2007, providing any defects are adequately repaired.

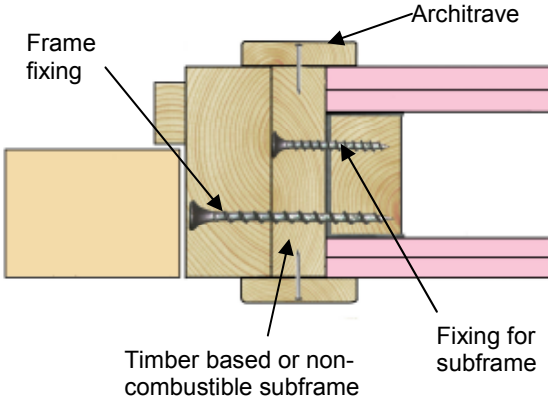
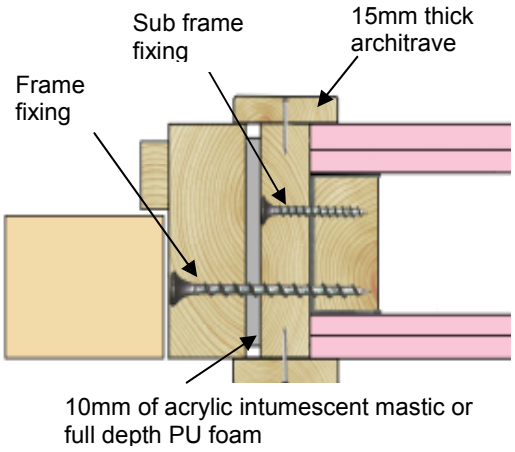
Timber for glazing beads and lippings must be straight grained joinery quality, free from knots, splits and checks.

## 19 Sealing to Structural Opening

The door frame to structural opening gap must be protected using one of the following methods:

The door frame to structural opening gap must be protected using one of the following methods:

| | |
|---|---|
| 1. Gaps up to 10mm must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1: 2000. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side. |  |
| 2. Gaps between 10mm and 20mm must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1: 2000. Architraves are optional. | |
| 3. Gaps up to 20mm filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam). Products must be tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1: 2000. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side. |  |

| | |
|---|---|
| 4. Timber based or non-combustible subframe up to 50mm thick, with no gaps between the components. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side. |  |
| 5. Timber based or non-combustible subframe up to 50mm thick, with gaps up to 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1: 2000. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side. |  |

Guidance for various methods of sealing the frame to structural opening gap is also given in BS 8214: 2008, “Code of practice for fire door assemblies”, which may be referred to where appropriate.

**Note:** Drawings are representative of doorset installation only, actual installations must be as the text within this document specifies.

## 20 Insulation

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

| Type | Details |
|---|---|
| Partially insulating | Doorsets incorporating up to 20% of non-insulating glazing |
| Fully insulating | Doorsets unglazed or including 30 minute insulating glazing (e.g. 15mm Pyrostop or 16mm Pyrobel) |

## 21 Smoke Control

If the doorset design is required to provide a smoke control function to comply with Building Regulations, then it must be fitted with a smoke seal or combined intumescent/smoke seal, that has been tested in accordance with BS 476: Part 31: Section 31.1 and demonstrated to maintain the leakage rate below $3m^3/m/h$ when tested at 25Pa.

Providing the smoke seals, any interruptions, door gaps, type/configuration of door is consistent with the tested detail, then the doorset will comply with current smoke control legislation and a suffix 'S' may be added to the designation. Any other installed components where smoke leakage may occur must also be taken into account e.g. air transfer grilles.

**Note:** The incorrect specification and fitting of smoke seals may impair the operation of a fire resisting doorset assembly such that integrity is reduced, or in the extreme case completely diminished.

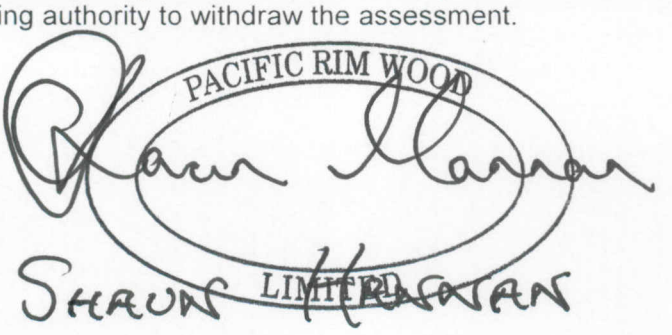
## 22 Conclusion

If 'Flamebreak' 30 doorsets, constructed in accordance with the specification documented in this global assessment, were to be tested in accordance with BS 476 : Part 22 : 1987, it is our opinion that they would provide a minimum of 30 minutes integrity and insulation (subject to section 20).

## 23 Declaration by the Applicant

1. We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No 82: 2001.
2. We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
3. We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
4. We are not aware of any information that could adversely affect the conclusions of this assessment.
5. If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.

Signed




Name:

For and on behalf of Pacific Rim Wood Ltd

## 24 Limitations

The following limitations apply to this assessment:

1. This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
2. This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, CIF reserves the right to withdraw the assessment unconditionally but not retrospectively.
3. This assessment has been carried out in accordance with Fire Test Study Group Resolution No 82: 2001.
4. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
5. This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

## 25 Validity

1. The assessment is initially valid for five years after which time it must be submitted to CIFL for technical review.
2. This assessment report is not valid unless it incorporates the declaration given in Section 23 duly signed by the applicant.

| | | |
|---|---|---|
| **Signature:** |  |  |
| **Name:** | **P N Barker** | **A M Winning** |
| **Title:** | Senior Consultant | Product Assessor |

# Appendix A

## Performance Data

### Primary Data

| Test Reference | Configuration | Leaf Size (mm) | Test Standard | Integrity (min) |
|---|---|---|---|---|
| RF98033 | ULSADD | 2135 x 915 x 45 | BS 476: Part 22: 1987 | 36 |
| RF98075 | 2 No. ULSASD | A = 2055 x 865 x 44<br>B = 2135 x 916 x 44 | BS 476: Part 22: 1987 | A = 31<br>B = 33 |
| RF00044 (stiles & rails no lippings) | 2 No. ULSASD | 2080 x 915 x 44 | BS 476: Part 22: 1987 | A = 19<br>B = 31 |
| RF00046 (stile removed lippings vertical edges only) | ULSADD | 2135 x 835 x 44 | BS 476: Part 22: 1987 | 32 |
| RF00098 (stiles & top rail only) | 2 No. ULSASD | A = 2080 x 916 x 44<br>B = 2080 x 860 x 44 | BS 476: Part 22: 1987 | A = 32<br>B = 33 |
| RF00166 (lipped & unlipped) | ULSASD | A = 2440 x 1220 x 44<br>B = 2390 x 1154 x 44 | BS 476: Part 22: 1987 | A = 37<br>B = 41 |
| RF04011 | LSASD | 1976 x 758 x 44 | BS 476: Part 22: 1987 | 31 |
| Warres 138803 | ULSASD | 2034 x 926 x 44 | BS 476: Part 22: 1987 | 36 |
| RF05041 (stile removed & lipped vertical edges only with rebated ME) | ULSADD | 2041 x 825 x 44 | BS 476: Part 22: 1987 | 39 |

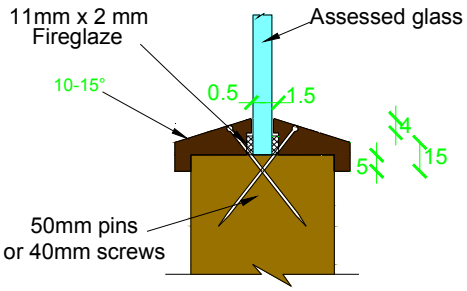
| Test Reference | Configuration | Leaf Size (mm) | Test Standard | Integrity (min) |
|---|---|---|---|---|
| RF08100 (P.U gluelines for lipping, large glazed apertures – ply and MDF faces) | A: ULSADD | A: 2100 x 900/350 x 44 | BS 476: Part 22: 1987 | A: 39 |
| | B: ULSASD | B: 2100 x 900 x 44 | BS 476: Part 22: 1987 | B: 51 |
| RF08116 (10 x 4 Pyroplex with ply and MDF faces) | A: ULSASD | A: 2040 x 826 x 44 | BS 476: Part 22: 1987 | A: 45 |
| | B: ULSASD | B: 2040 x 826 x 44 | BS 476: Part 22: 1987 | B: 35 |
| RF08118 (Large ply face doorsets with overpanel and rebated head junction with Pyroplex) | ULSADD + OP | 2400 x 1000 x 44 + 400 OP | BS 476: Part 22: 1987 | 41 |
| RF10149 (ply face doorsets with light weight core) | ULSADD + OP | 2130 x 930 x 44 + 400 OP | BS 476: Part 22: 1987 | 33 (failure of latch – perimeter failure at 38) |
| RF11026 (large ply face with no perimeter stiles and rails) | LSASD | 2761 1236 44 | BS 476: Part 22: 1987 | 39 |

## Supplementary Data

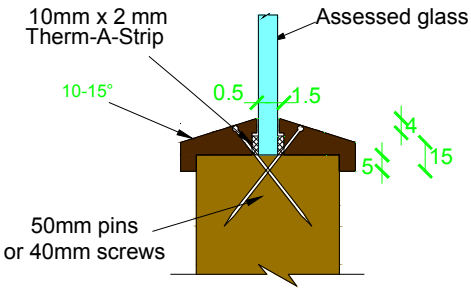
| Test Reference | Configuration | Leaf Size (mm) | Test Standard | Integrity (min) |
|---|---|---|---|---|
| RF09105 (A: 20 x 4mm & B: 15 x 4mm Pyroplex with MDF facings) | A: ULSASD<br>B: ULSASD | Both<br>2145 x 927 x 44 | BS EN 1634-1: 2000 | 35 |
| A07051 Rev B (assessment of Lorient Type 617 seals) | Various | Various | BS 476: Part 22: 1987 | 30 and 60 |
| WF137714 (Pyroplex glazing system 30054) | Indicative | 990 x 900 x 44 | BS 476: 20: 1987 | 41 |
| WF139878 (Pyroplex glazing system 30049) | Indicative | 990 x 990 x 44 | BS 476: Part 20: 1987 | 29 (failure attributed to glass not glazing system) |

## Appendix B

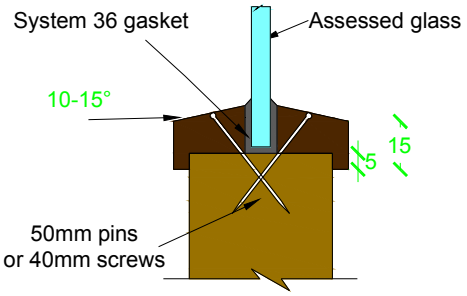
### Proprietary 30 Minute Glazing Systems



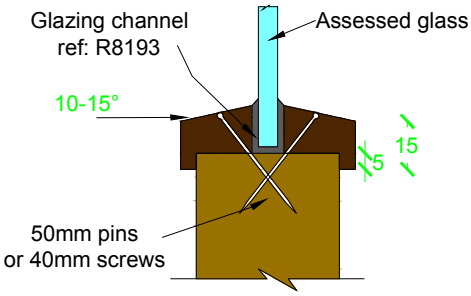

Fireglaze
Sealmaster Ltd



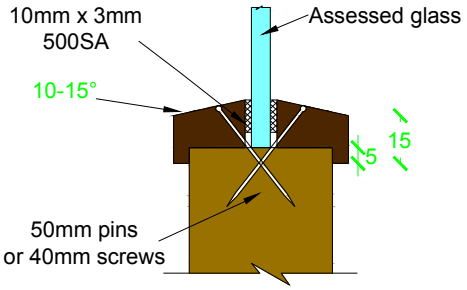

Therm-A-Strip
Intumescent Seals Ltd



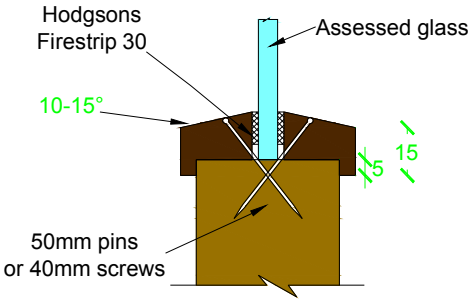

System 36
Lorient Polyproducts Ltd



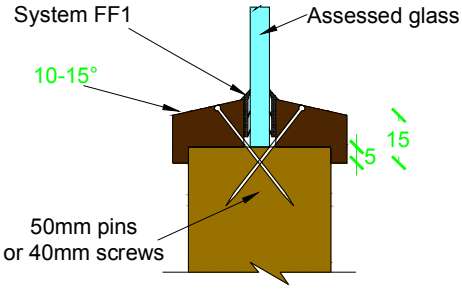

Pyroplex Ltd



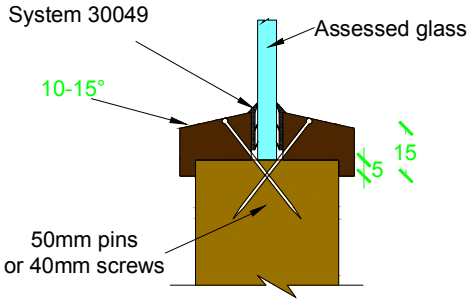

Pyroglaze 30
Mann McGowan Ltd



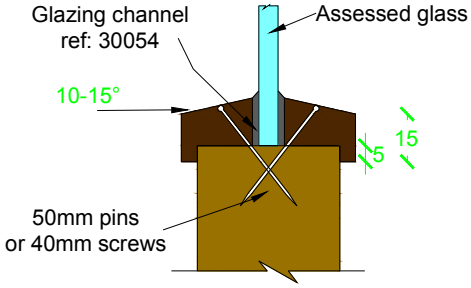

Firestrip 30
Hodgsons Sealants Ltd




System FF1
Lorient Polyproducts Ltd




Pyroplex Ltd

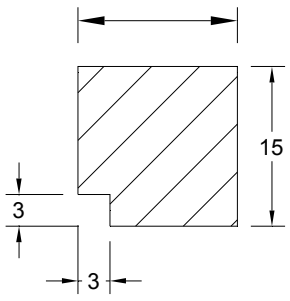



Pyroplex Ltd

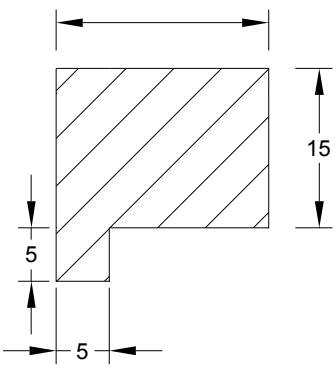
## Assessed Square Glazing Bead Profiles

(The following square bead profiles may be used as an alternative to the splayed beads detailed above - refer to section 7 for glazing system and glass restrictions)

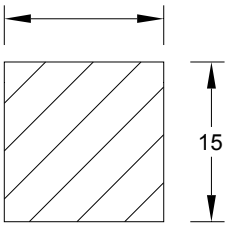
To finish flush with the leaf face




Suited to glass thickness




To finish flush with the leaf face



## Appendix C

### Revisions

| Revision | CIFL Reference | Date | Description |
|---|---|---|---|
| A | FEA/F00125 | 01.08.00 | Inclusion of additional test evidence to justify the use of further facing materials. Recalculation of maximum approved leaf dimensions and justification for the alteration of leaf size. |
| B | Chilt/A01032 | 26.02.01 | 1. Inclusion of test evidence RF00166 and re-calculation of size range.<br>2. Assessment of facing range for 2440 x 1220 max leaf size.<br>3. Assessment of softwood door frames for 2440 x 1220 max leaf size |
| C | Chilt/A02194 | 04.10.02 | Revalidation for a further five year period and minor alterations to the report format. |
| D | Chilt/A04051 | 09.6.04 | Inclusion of test evidence from RF04011 including feature grooves and 6mm lippings. |
| E | Chilt/A05159 | 08.09.05 | Revalidation for a further five year period and inclusion of test evidence from RF05041 including rebated meeting edges and alternative thickness' of face materials. |
| F | Chilt/A07168 | 20.8.07 | Inclusion of Lorient Type 617 intumescent seals and revalidation for 5 years |
| G | Chilt/A08228 | 4.12.08 | Inclusion of PU gluelines for lipping doors, glazed apertures to 1.44m$^2$, MDF door frames, coverage for 10 x 4 Pyroplex seals (design limitations apply), overpanels with a flush and rebated junction, Lorient Type 617 written into a separate Flamebreak document, addition of Pyroplex glazing system 30054 based on WF137714, addition of Pyroplex glazing system based on WF30049 |

| Revision | CIFL Reference | Date | Description |
|---|---|---|---|
| H | Chilt/A09152 | 22.12.09 | Technical review and update of assessment format; evidence from test RF09105 to BS EN 1634-1 incorporated into document - Lorient Type 617 perimeter seals and large single leaf doors with Pyroplex seals. Amendment to facing thickness |
| I | Chilt/A09152 Rev I | 22.07.10 | Edit to intumescent gaskets required for flush bolts and top pivots |
| J | Chilt/A11055 | 04.04.11 | Technical review and update of assessment. Evidence from test RF10149 and RF11026 has been included to permit reduced core density and large leaf sizes without perimeter framing. Assessment validated for a further 5 years. |

# Appendix D

**Data Sheets for:**

**Pacific Rim Wood Ltd**

**'Flamebreak' 30 Doorsets**

**30 Minutes Fire Resistance**

# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched & Unlatched Single Acting & Double Acting Single Doorsets – Pyroplex Rigid Box Seal

| All assessed facing types | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSASD | From: | 2145 | x | 1067 |
| | | To: | 2463 | x | 927 |
| | ULSASD & DASD | From: | 2145 | x | 1042 |
| | | To: | 2413 | x | 927 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

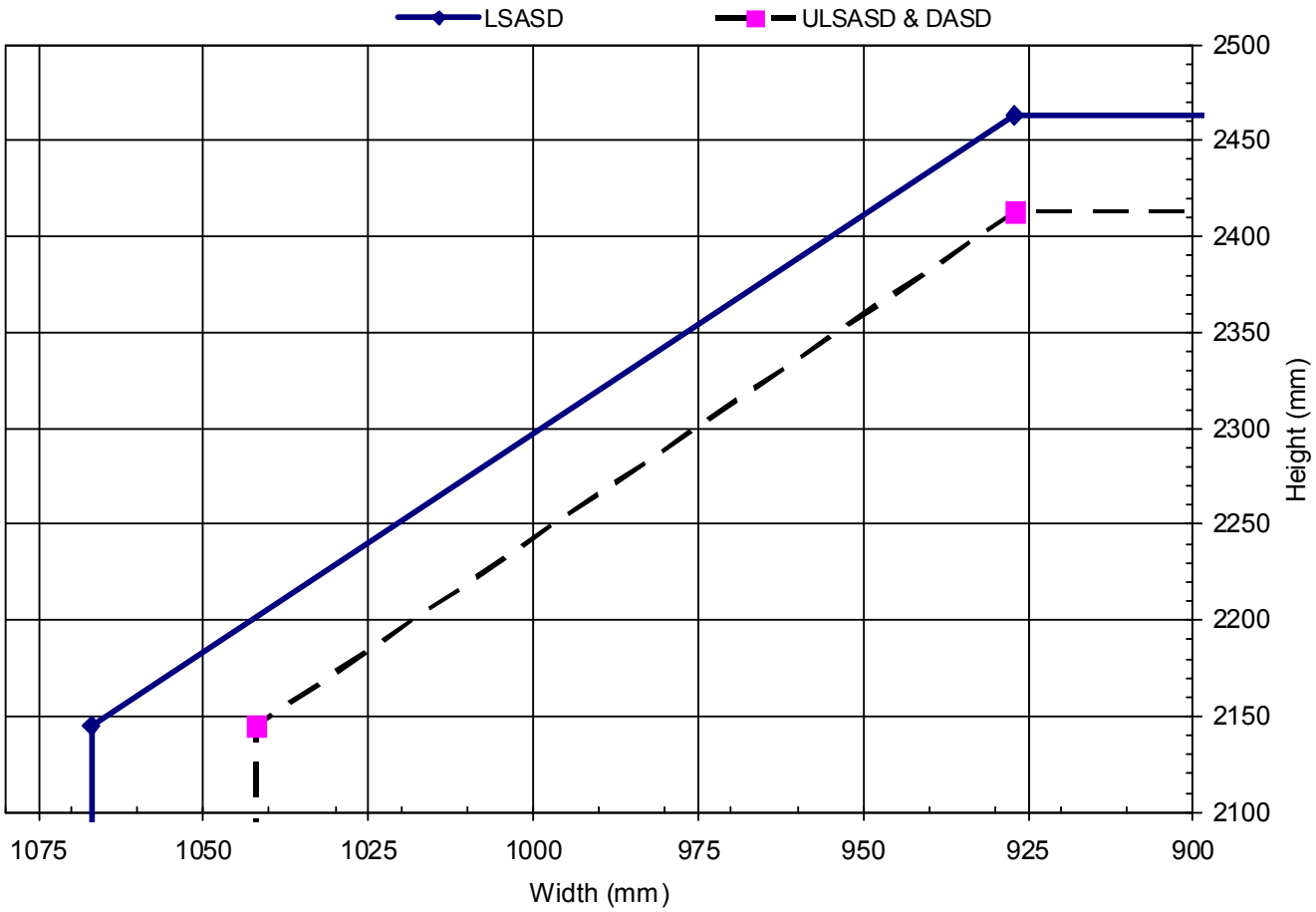
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:** 1 No 15 x 4mm PVC encapsulated Pyroplex fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings.

**Jambs:** 1 No 15 x 4mm PVC encapsulated Pyroplex fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched & Unlatched Single Acting & Double Acting Single Doorsets – Pyroplex Rigid Box Seal

| All assessed facing types | | | | | |
|---|---|---|---|---|---|
| | Configuration | | Height (mm) | | Width (mm) |
| Leaf Sizes | LSASD | From: | 2145 | x | 1067 |
| | | To: | 2463 | x | 927 |
| | ULSASD & DASD | From: | 2145 | x | 1042 |
| | | To: | 2413 | x | 927 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

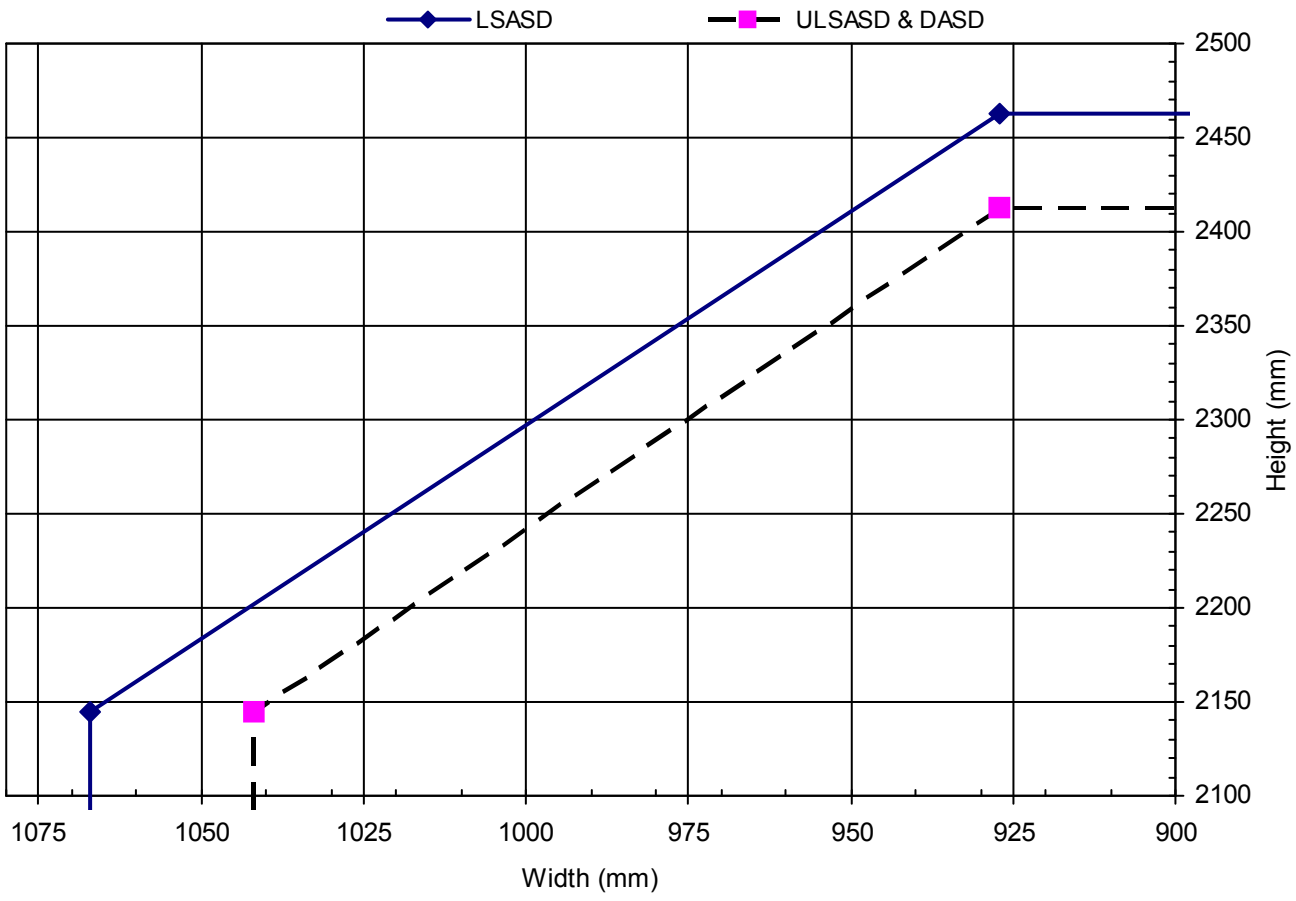
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:** 1 No 20 x 4mm PVC encapsulated Pyroplex fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 20 x 4mm PVC encapsulated Pyroplex fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched Single Acting Single Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2390 | x | 1387 |
| | | To: | 2870 | x | 1154 |
| | All other assessed facing types | Max: | 2440 | x | 1220 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

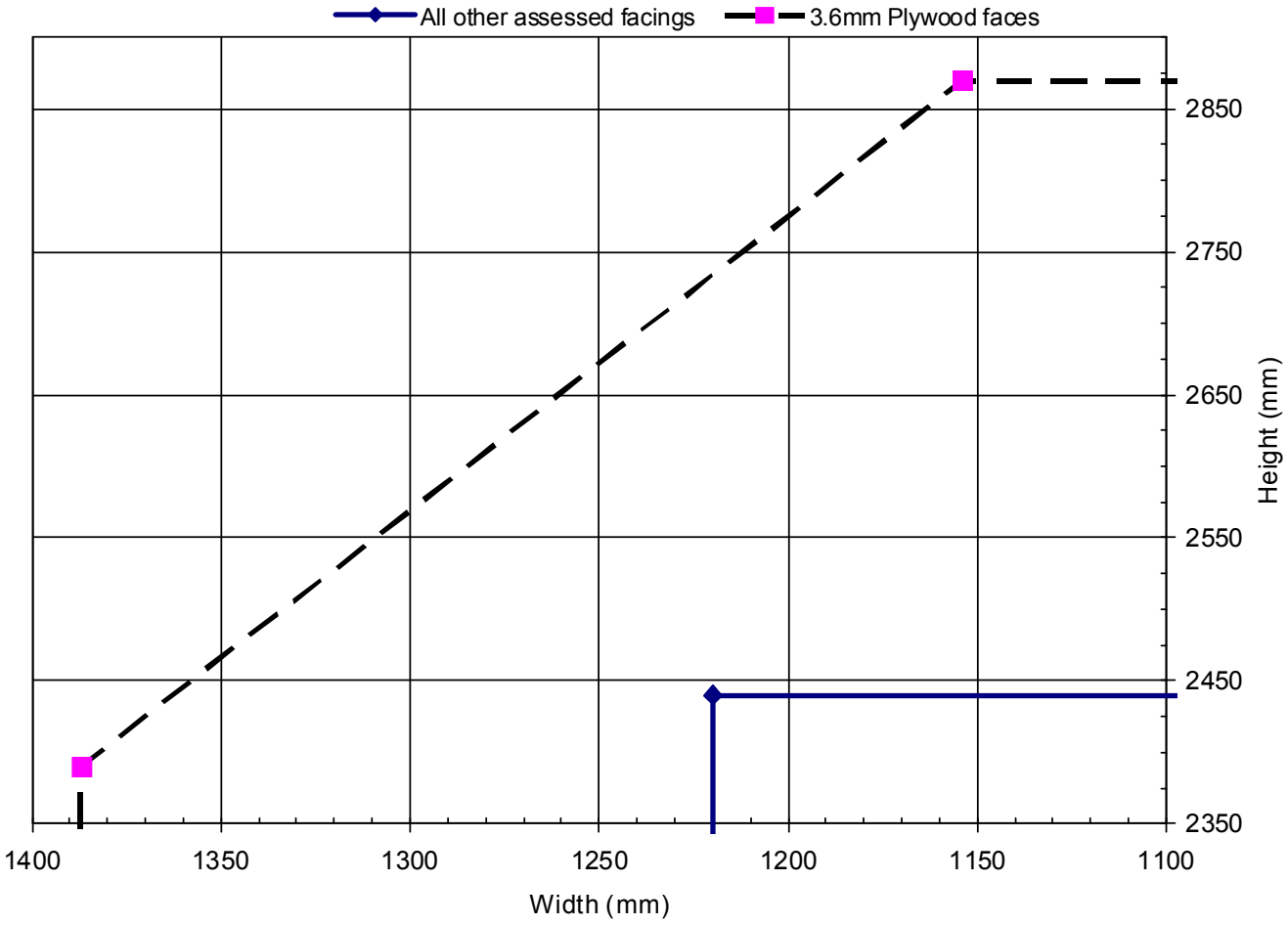
**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 15 x 4mm seal fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings. Leaves over 2390mm high increase to 25 x 4mm.

**Jambs:** 1 No 15 x 4mm seal fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings. Leaves over 1100mm wide increase to 25 x 4mm.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched Single Acting Single Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2390 | x | 1387 |
| | | To: | 2870 | x | 1154 |
| | All other assessed facing types | Max: | 2440 | x | 1220 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

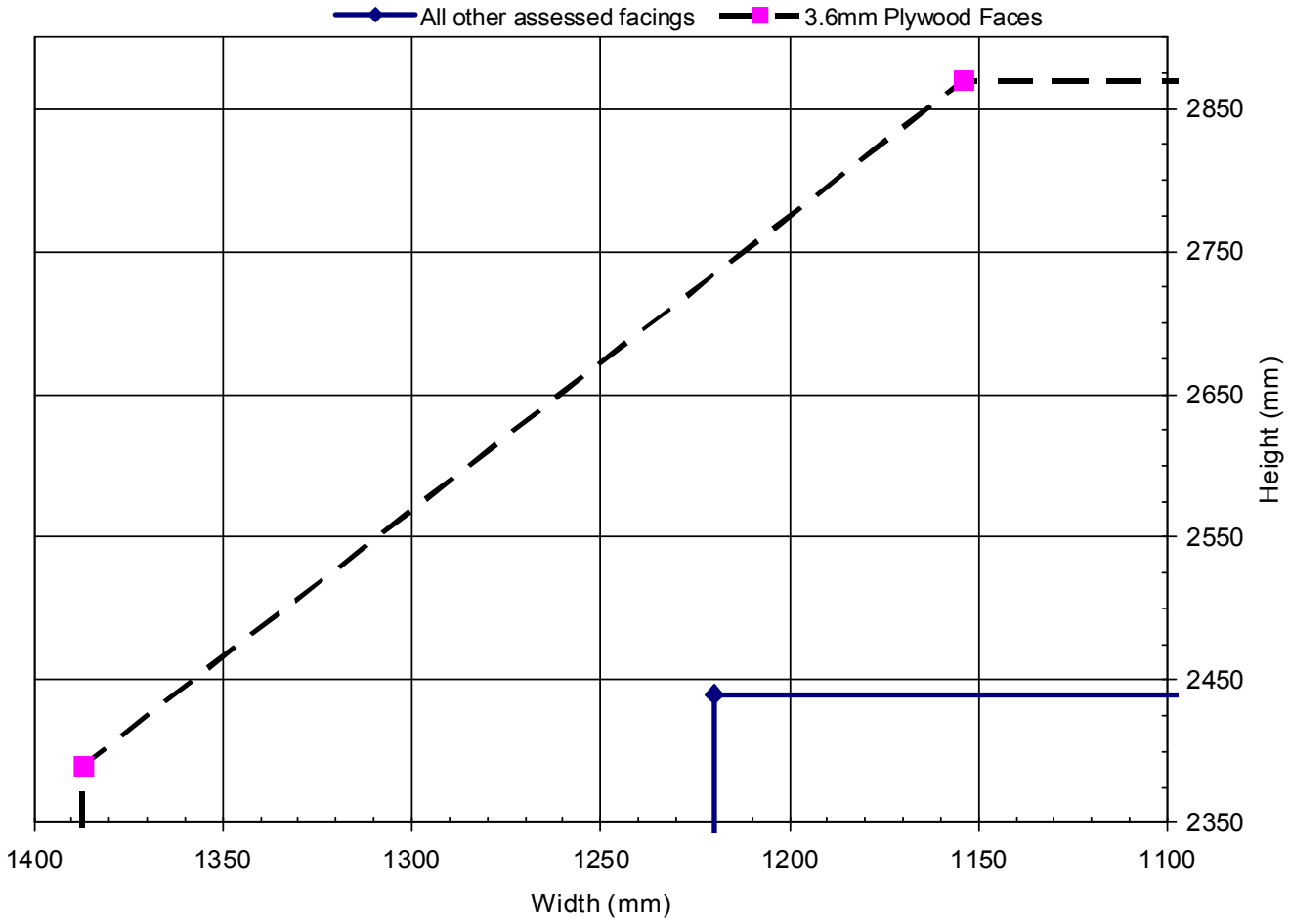
**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal. Leaves over 2390mm high increase to 25 x 4mm.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal. Leaves over 1100mm wide increase to 25 x 4mm.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Unlatched Single Acting & Double Acting Single Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2390 | x | 1362 |
| | | To: | 2820 | x | 1154 |
| | All other assessed facing types | Max: | 2440 | x | 1220 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

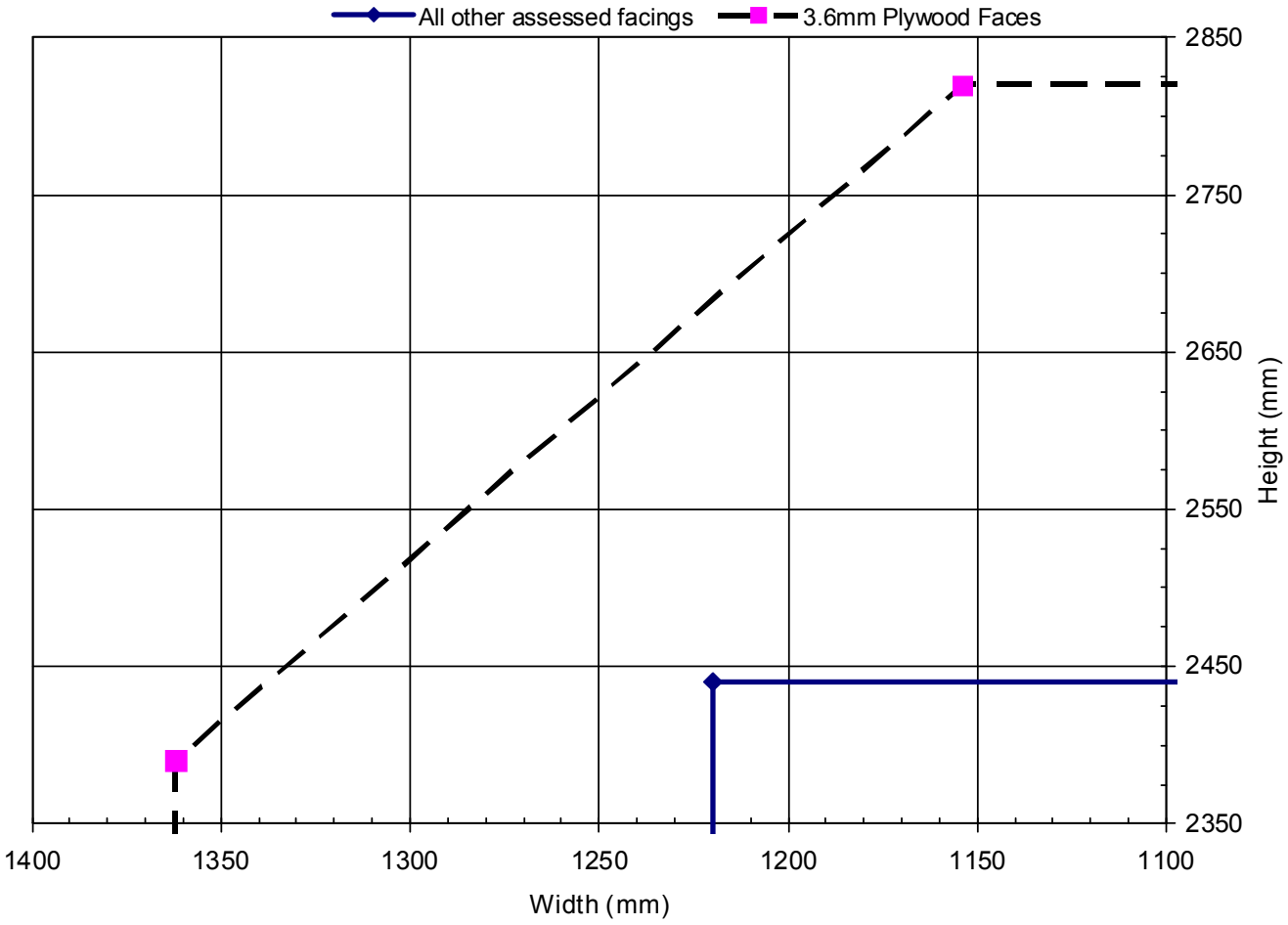
**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 15 x 4mm seal fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings. Leaves over 2390mm high increase to 25 x 4mm.

**Jambs:** 1 No 15 x 4mm seal fitted centrally in the leaf edge or frame reveal. Increase to 20 x 4mm for leaves that use 9mm thick MDF facings. Leaves over 1100mm wide increase to 25 x 4mm.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Unlatched Single Acting & Double Acting Single Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2390 | x | 1362 |
| | | To: | 2820 | x | 1154 |
| | All other assessed facing types | Max: | 2440 | x | 1220 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

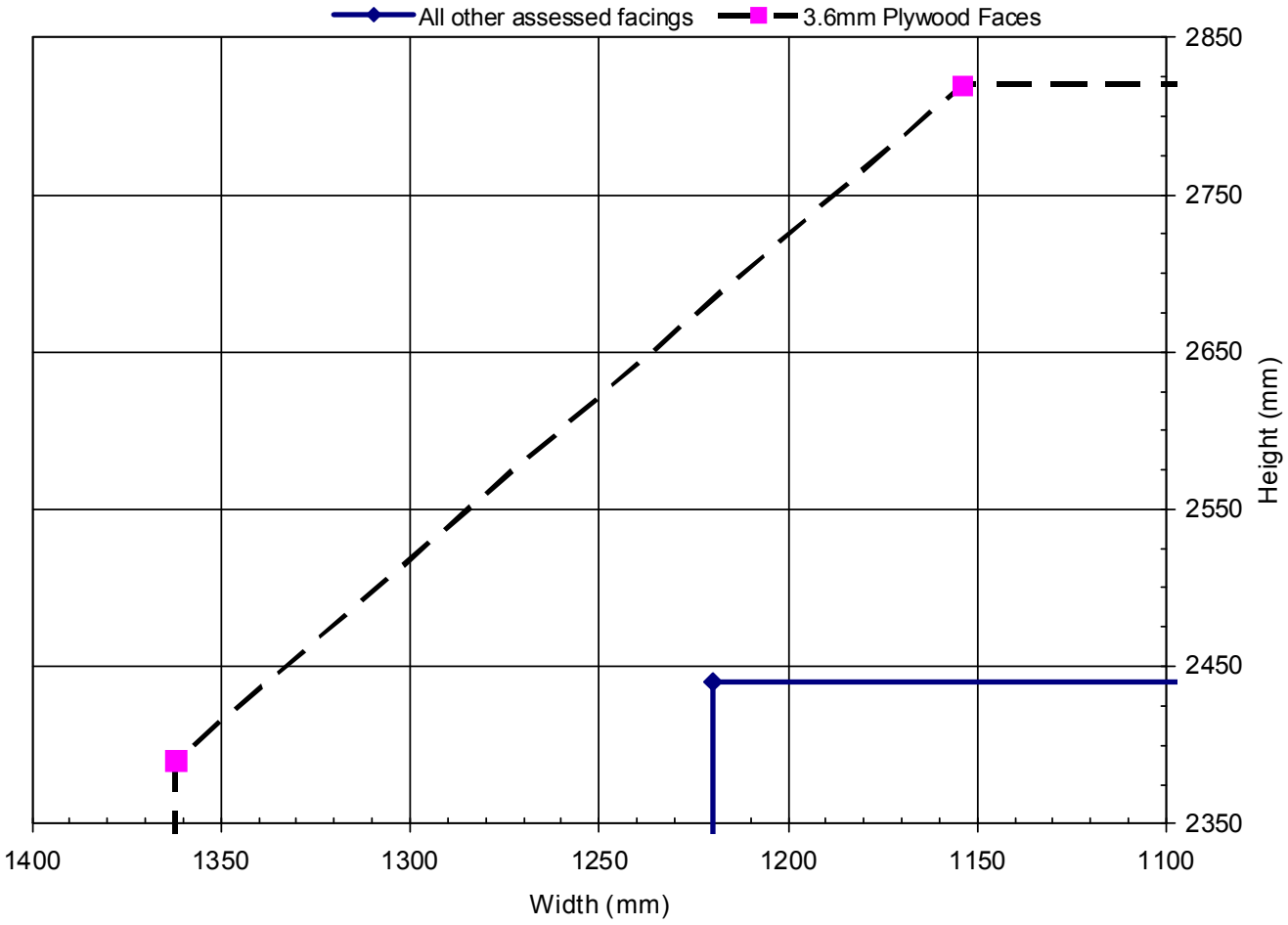
**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal. Leaves over 2390mm high increase to 25 x 4mm.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal. Leaves over 1100mm wide increase to 25 x 4mm.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched & Unlatched Single Acting & Double Acting Single Doorsets – Pyroplex Rigid Box Seal

| Facing Type: 6mm MDF | | | | | |
|---|---|---|---|---|---|
| | Configuration | | Height (mm) | | Width (mm) |
| Leaf Sizes | LSASD | From: | 2040 | x | 1057 |
| | | To: | 2600 | x | 826 |
| | ULSASD & DASD | From: | 2040 | x | 1032 |
| | | To: | 2550 | x | 826 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

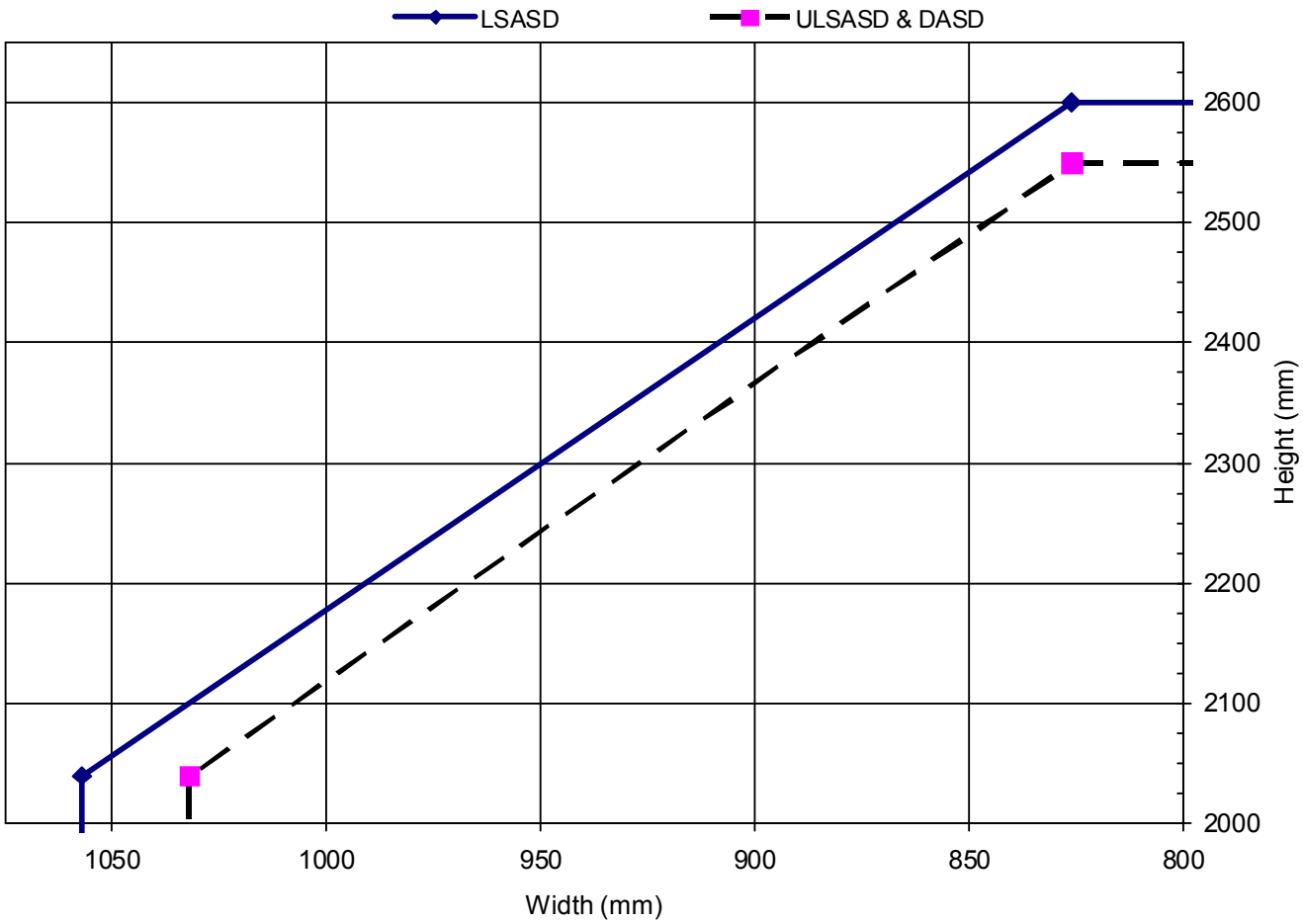
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:** 1 No 10 x 4mm fitted centrally in the leaf edge or frame reveal. Leaves over 2300mm high increase to 15 x 4mm.

**Jambs:** 1 No 10 x 4mm fitted centrally in the leaf edge or frame reveal. Leaves over 2300mm high increase to 15 x 4mm.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched & Unlatched Single Acting & Double Acting Single Doorsets – Pyroplex Rigid Box Seal

| Facing Type: 3.6mm Plywood | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSASD | From: | 2040 | x | 919 |
| | | To: | 2260 | x | 826 |
| | ULSASD & DASD | From: | 2040 | x | 894 |
| | | To: | 2210 | x | 826 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

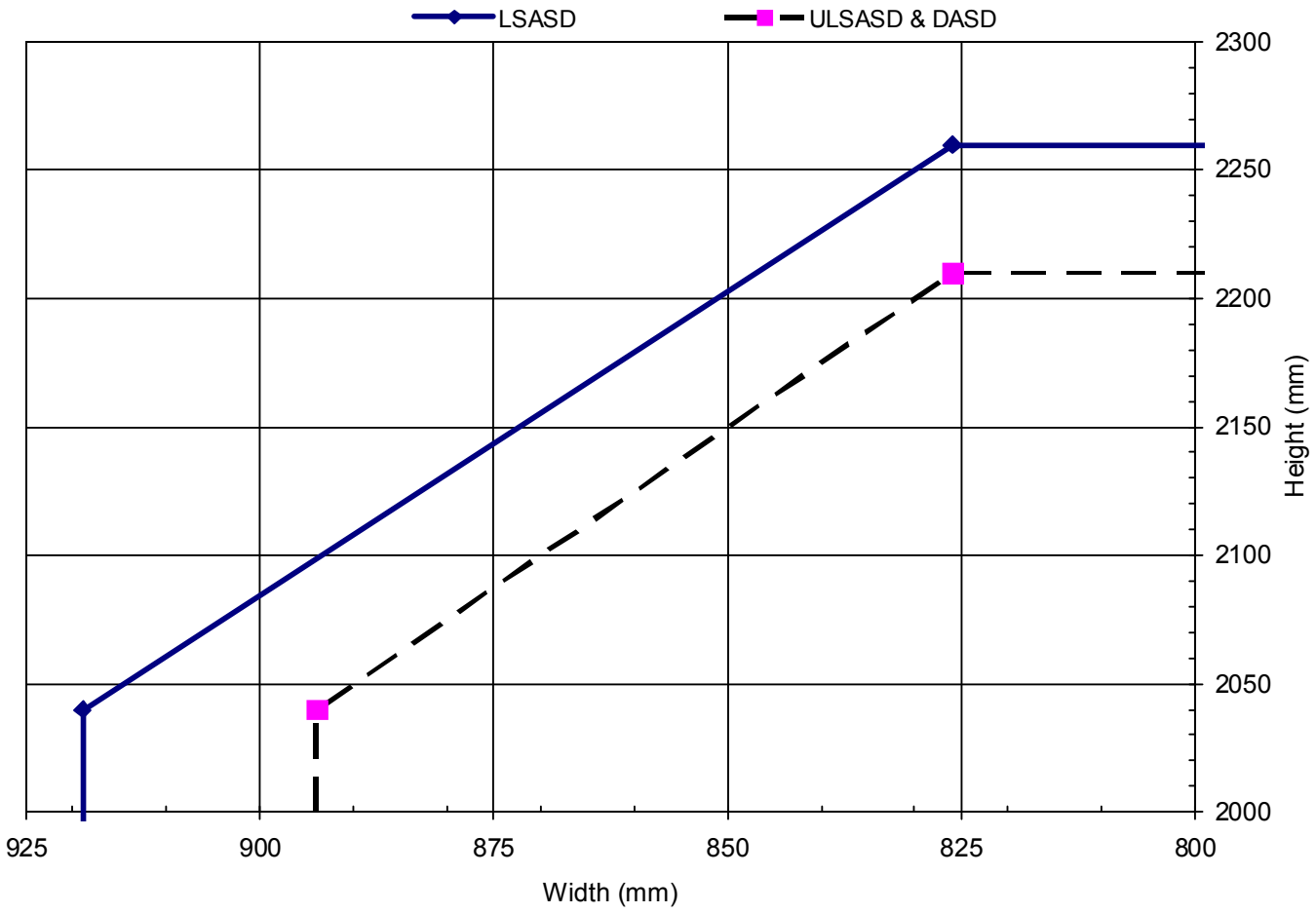
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:** 1 No 10 x 4mm fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 10 x 4mm fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched & Unlatched Single Acting & Double Acting Single Doorsets – Pyroplex Rigid Box Seal

| Facing Types: 3.6mm Plywood, 6mm Plywood, 6mm MDF | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSASD | From: | 2400 | x | 1358 |
| | | To: | 3190 | x | 1000 |
| | ULSASD & DASD | From: | 2400 | x | 1333 |
| | | To: | 3140 | x | 1000 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

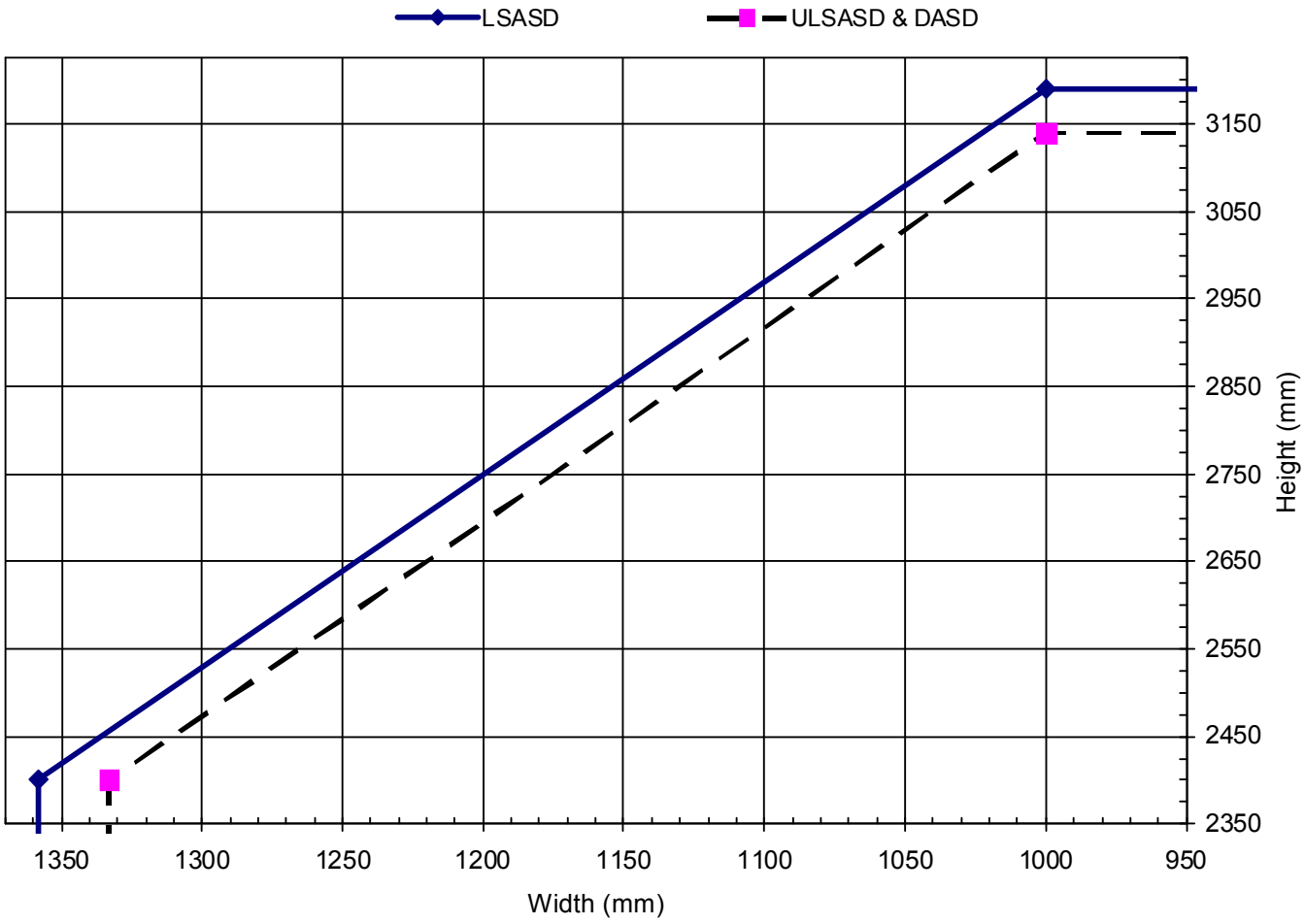
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:** 2 No 10 x 4mm fitted centrally 10mm apart in the leaf edge or frame reveal.

**Jambs:** 2 No 10 x 4mm fitted centrally 10mm apart in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched Single Acting Single Doorsets – Palusol or Type 617

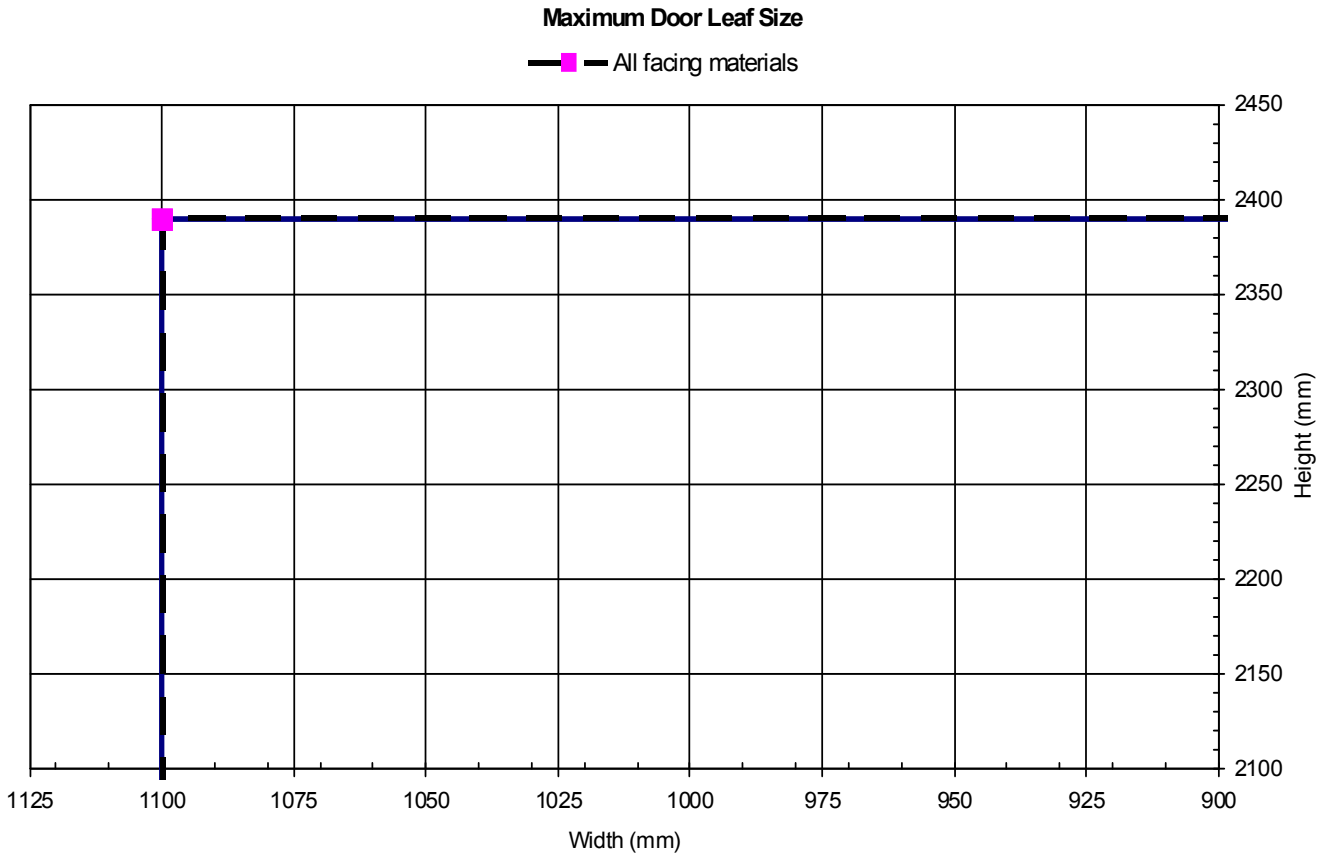
| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | All assessed facing materials | Maximum dimensions | 2390 | x | 1100 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Unlatched Single Acting Single Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | All assessed facing materials | Maximum dimensions | 2390 | x | 1100 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

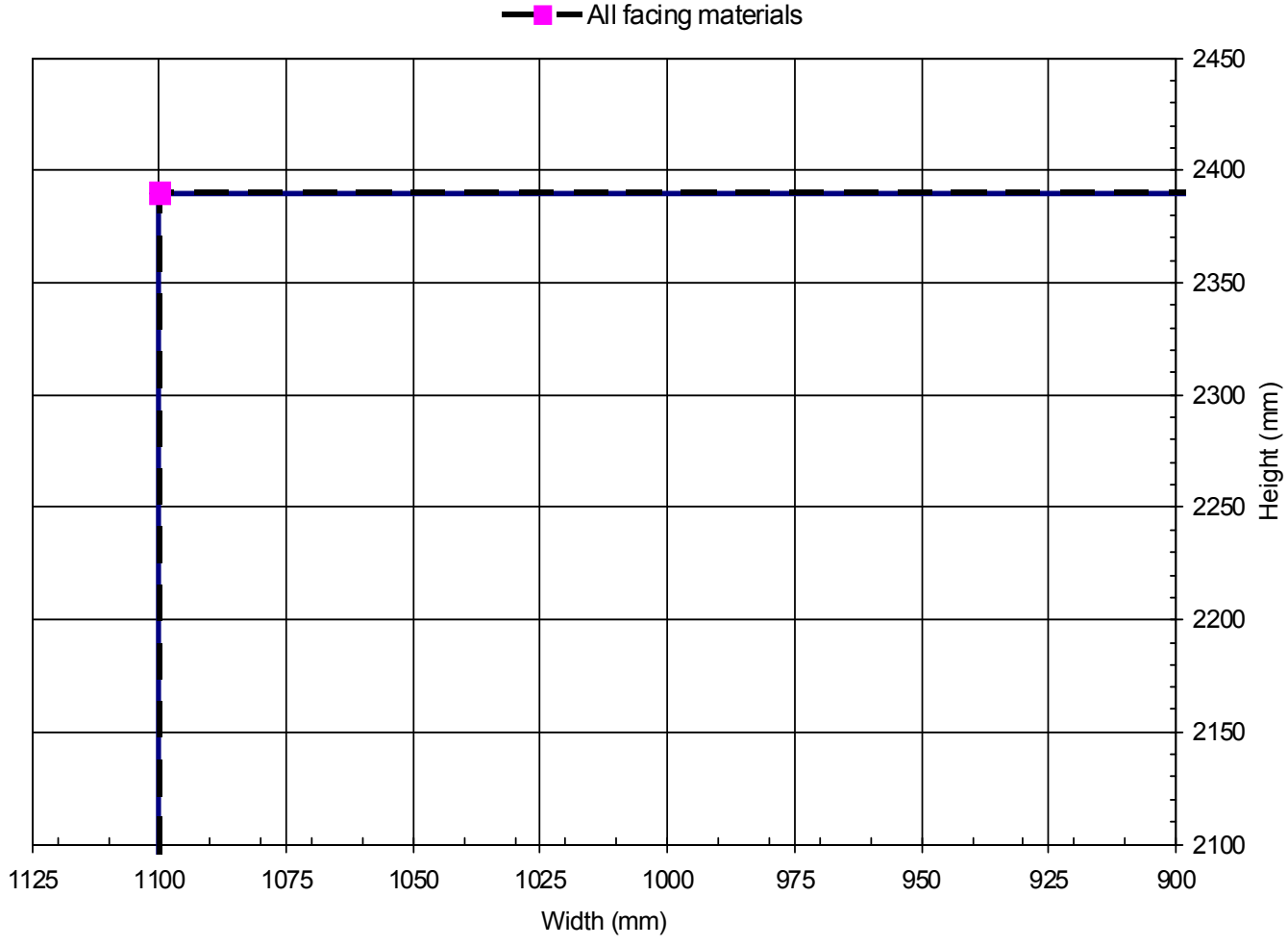
**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched Single Acting Single Doorsets with no perimeter framing – Type 617

| Facing Types: 3.6mm Plywood | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSASD | From: | 2761 | x | 1514 |
| | | To: | 3382 | x | 1236 |
| Maximum Overpanel height (mm) | | Transomed | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

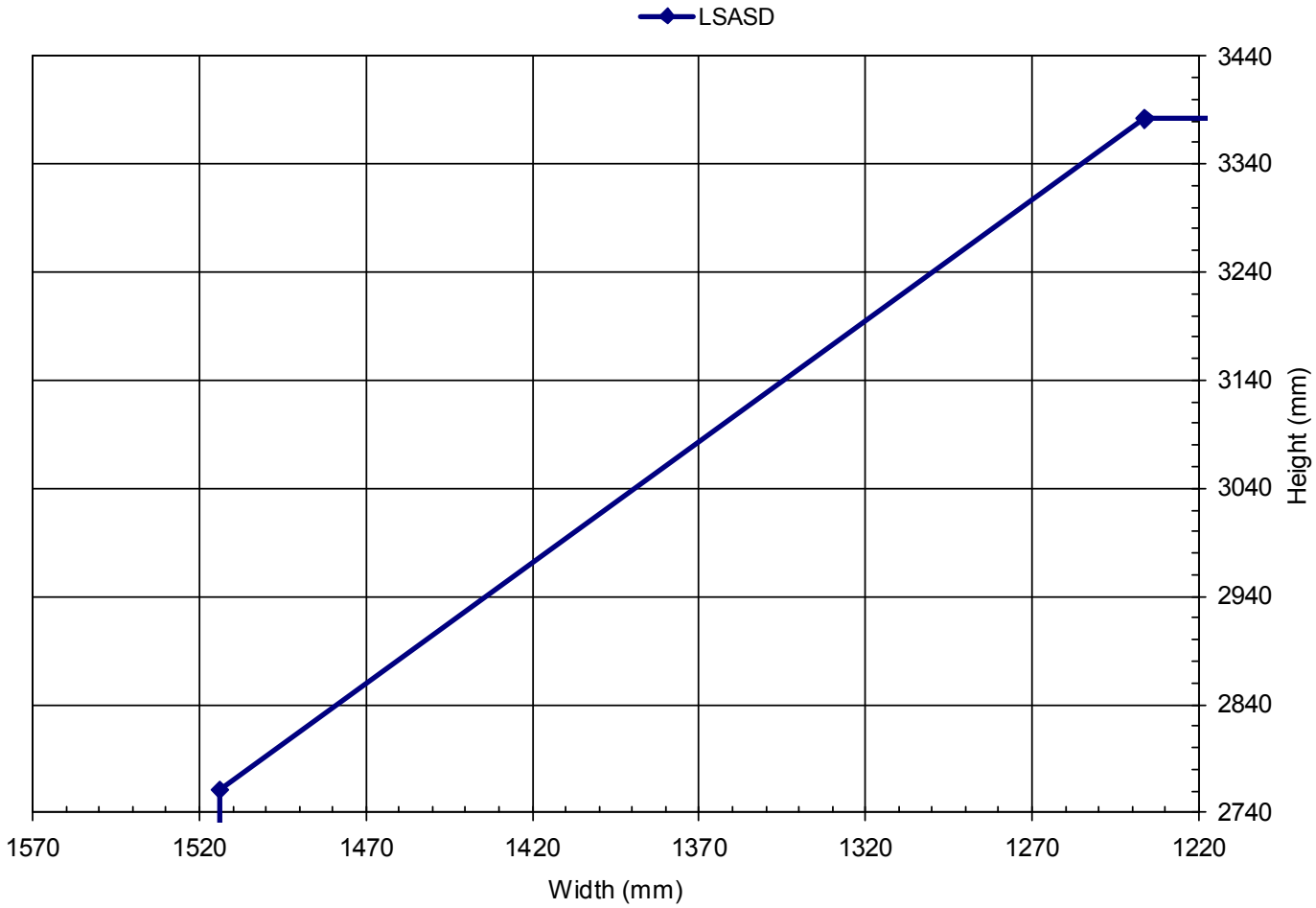
**Intumescent Materials: PVC encapsulated Type 617**

**Head:** 1 No 25 x 4mm fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 25 x 4mm fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched & Unlatched Single Acting & Double Acting Single Doorsets + Overpanel – Pyroplex Rigid Box Seal

| Facing Type: 3.6mm Plywood | | | | | |
|---|---|---|---|---|---|
| | Configuration | | Height (mm) | | Width (mm) |
| Leaf Sizes | LSASD + OP | From: | 2400 | x | 1308 |
| | | To: | 3090 | x | 1000 |
| | ULSASD & DASD + OP | From: | 2400 | x | 1283 |
| | | To: | 3040 | x | 1000 |
| Maximum Overpanel height (mm) | | | 2000 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

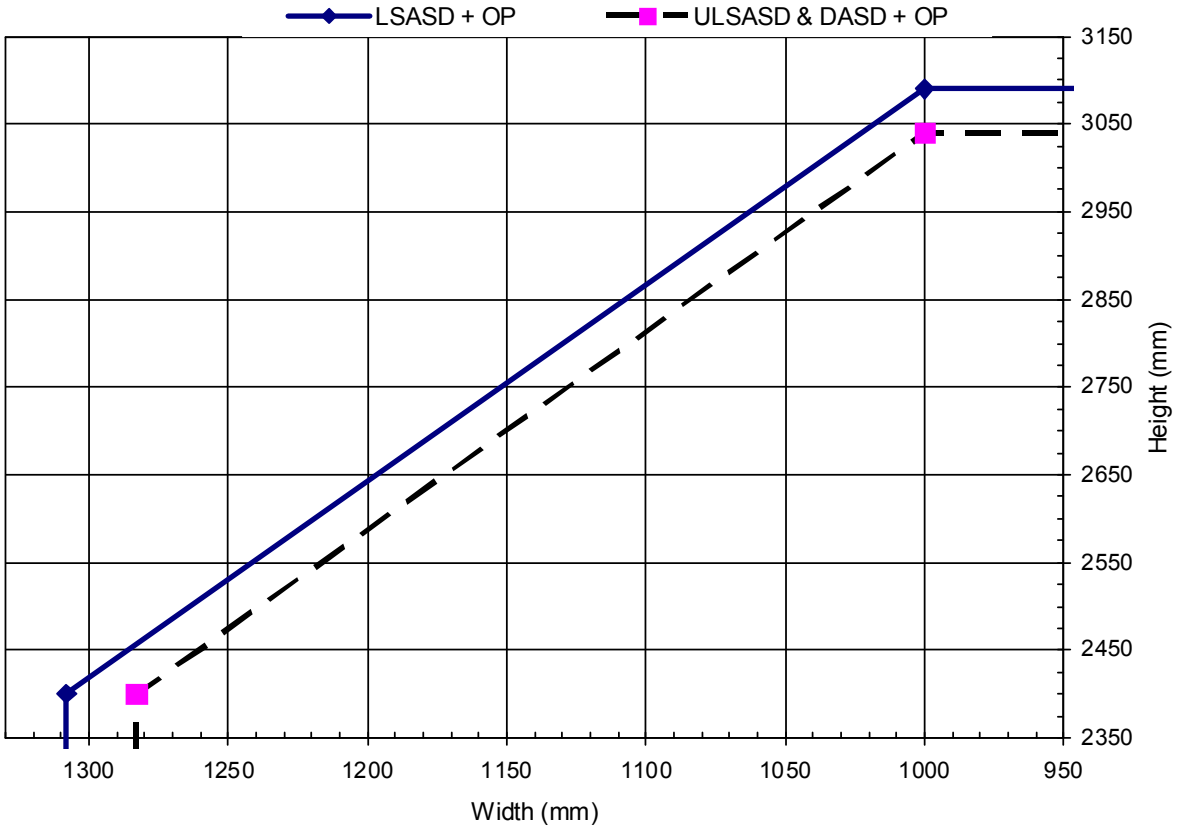
**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:**
**Square -** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in the leaf edge or bottom of overpanel.
**Rebated**:
**Leaves** - 2 No 10 x 4mm with one strip centrally fitted on the top of the upstand of the rebate and one centrally in the bottom of the rebate.

**Jambs:** 2 No 10 x 4mm fitted centrally in the leaf edge or frame reveal.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Latched Single Acting Double Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2135 | x | 1047 |
| | | To: | 2434 | x | 915 |
| | All other assessed facing types | From: | 2135 | x | 969 |
| | | To: | 2252 | x | 915 |
| Maximum Overpanel height (mm) | | Transomed | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

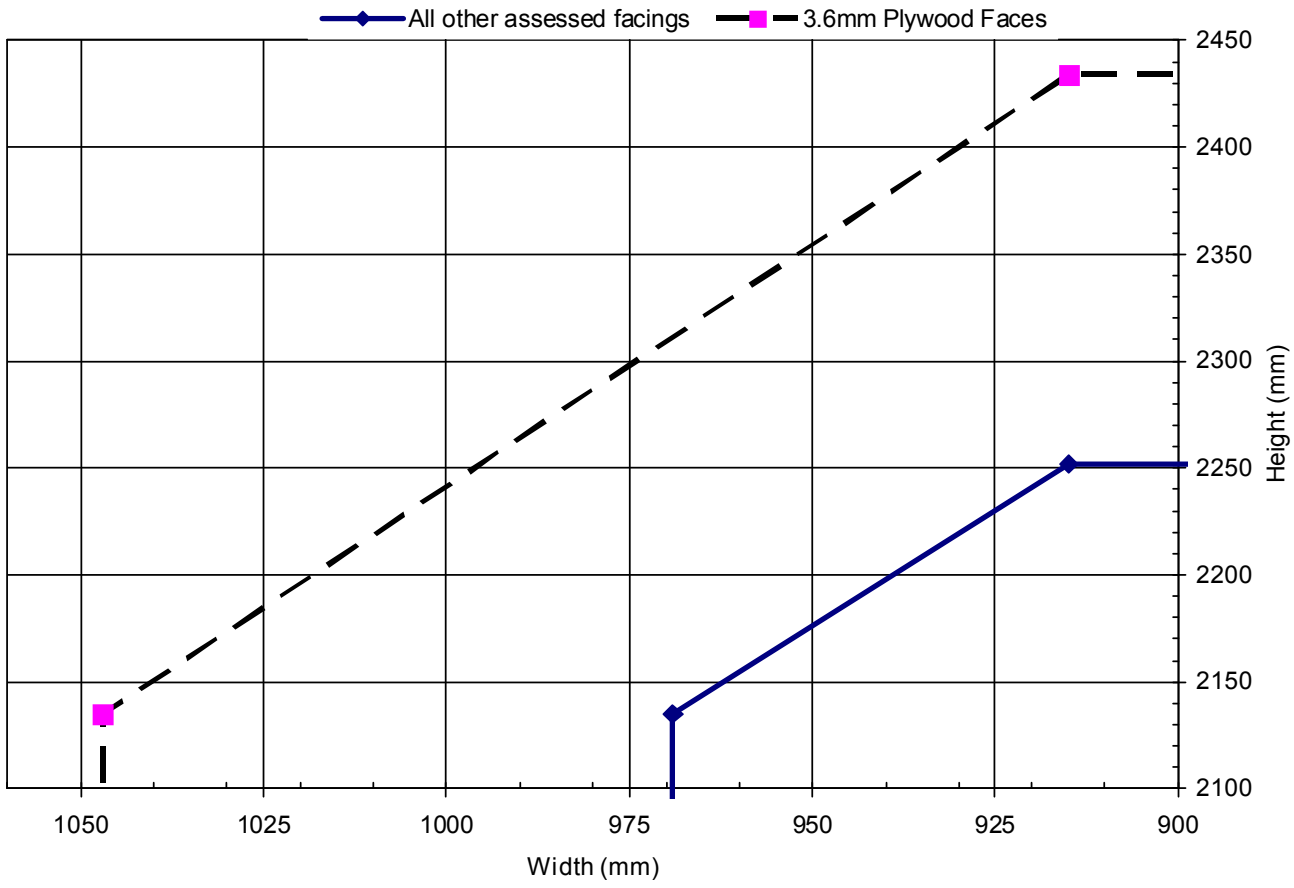
**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Meeting Edges:**
**Square** - 1 No 20 x 4mm seal fitted centrally in one meeting edge.
**Rebated** -1 No 10 x 4mm seal fitted centrally in the rebate of both leaf edges.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched Single Acting Double Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2135 | x | 1047 |
| | | To: | 2434 | x | 915 |
| | All other assessed facing types | From: | 2135 | x | 969 |
| | | To: | 2252 | x | 915 |
| Maximum Overpanel height (mm) | | Transomed | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

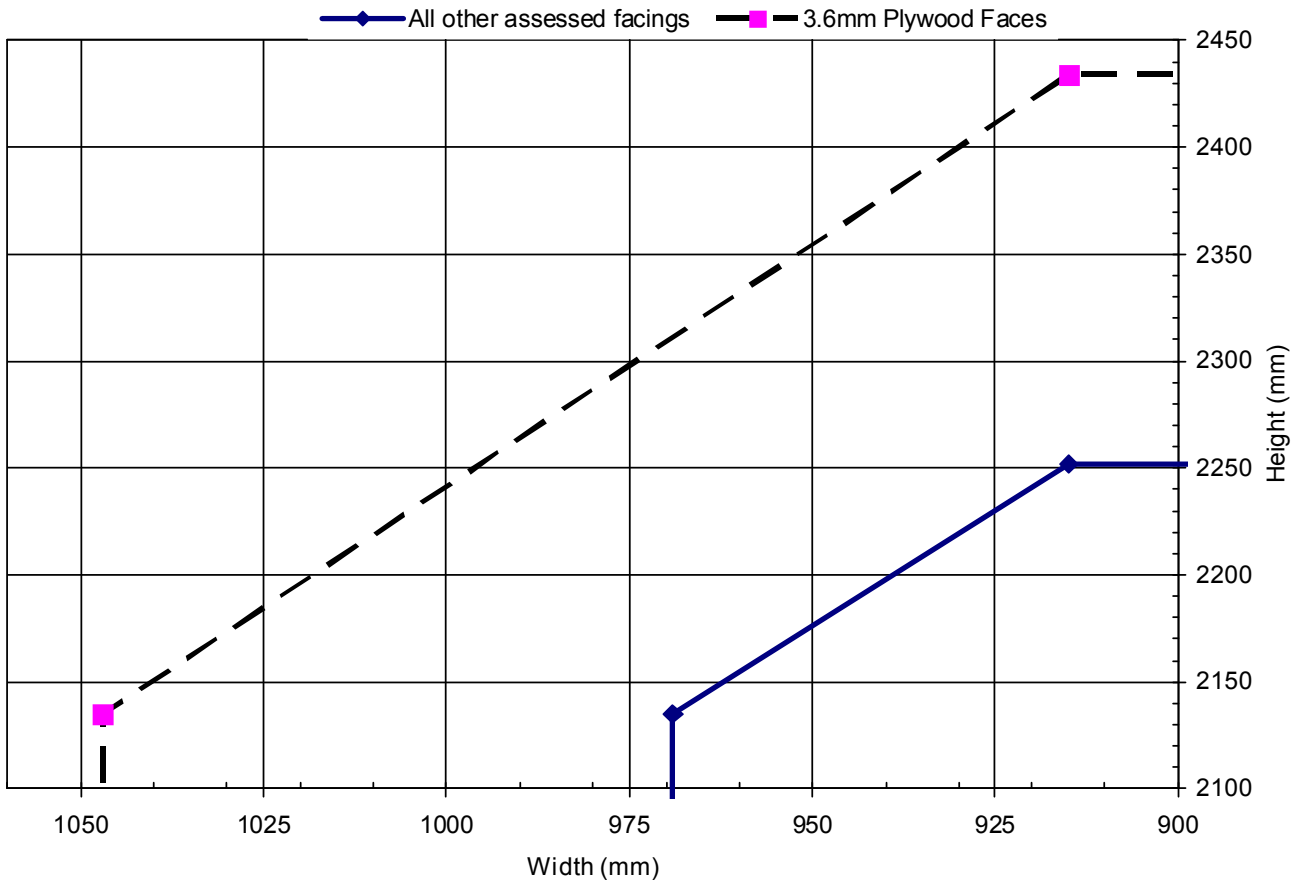
**Head:** 1 No 25 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Jambs:** 1 No 25 x 4mm seal fitted centrally in the leaf edge or frame reveal.

**Meeting Edges:**
**Square** - 1 No 20 x 4mm seal fitted centrally in one meeting edge.
**Rebated** -1 No 10 x 4mm seal fitted centrally in the rebate of both leaf edges.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Unlatched Single Acting & Double Acting Double Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2135 | x | 1022 |
| | | To: | 2384 | x | 915 |
| | All other assessed facing types | From: | 2135 | x | 944 |
| | | To: | 2202 | x | 915 |
| Maximum Overpanel height (mm) | | Transomed | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

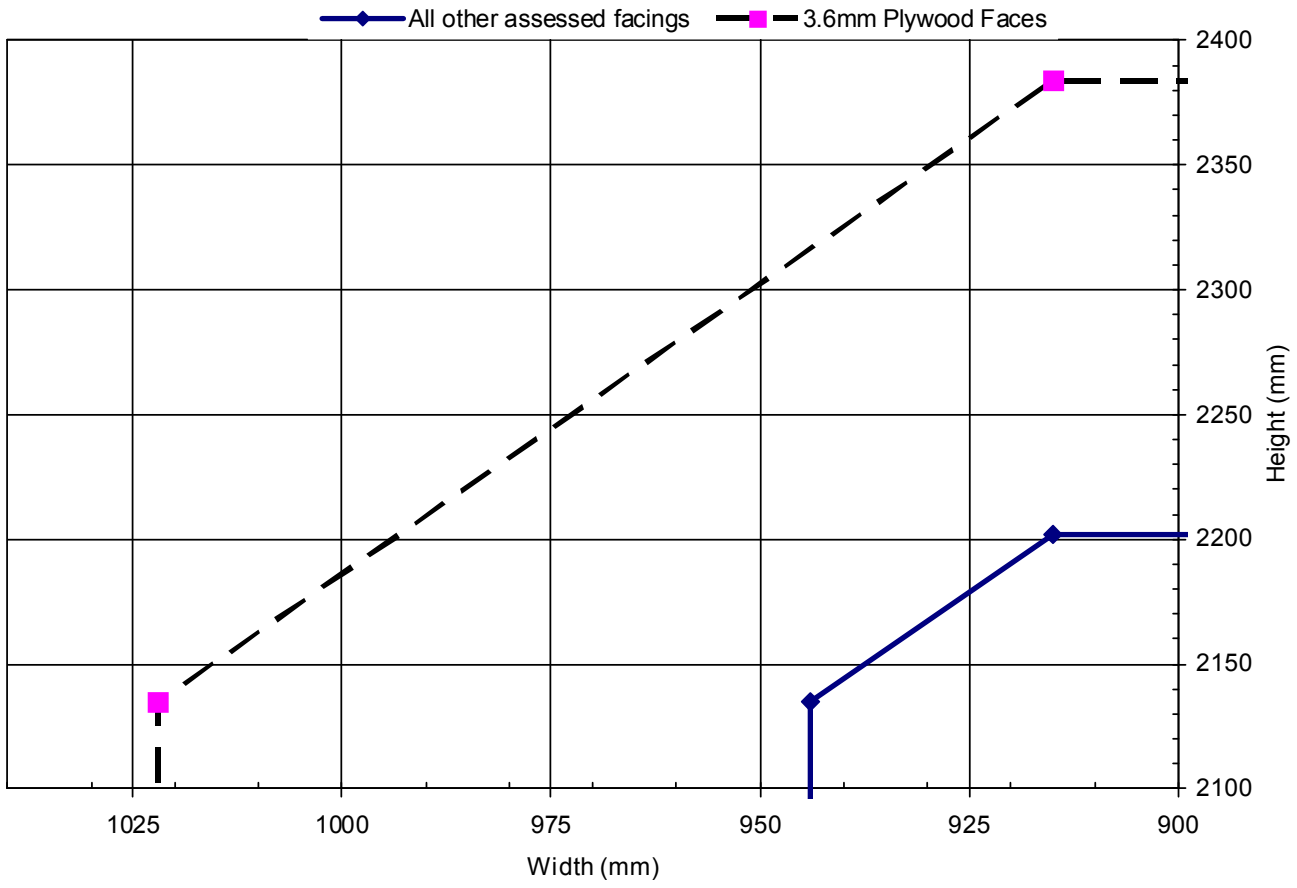
**Head:** 1 No 20 x 4mm seal fitted centrally in the leaf edges or frame reveal.

**Jambs:** 1 No 20 x 4mm seal fitted centrally in the leaf edges or frame reveal.

**Meeting Edges:**
**Square** - 1 No 20 x 4mm seal fitted centrally in one meeting edge.
**Rebated** -1 No 10 x 4mm seal fitted centrally in the rebate of both leaf edges.

**Hardware Protection**: see section 11

### Maximum Door Leaf Size



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

### Unlatched Single Acting & Double Acting Double Doorsets – Palusol or Type 617

| | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | **Facing Type** | | Height (mm) | | Width (mm) |
| | 3.6mm thick Plywood | From: | 2135 | x | 1022 |
| | | To: | 2384 | x | 915 |
| | All other assessed facing types | From: | 2135 | x | 944 |
| | | To: | 2202 | x | 915 |
| Maximum Overpanel height (mm) | | Transomed | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ (see section 7 for details) | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Palusol 100 or Type 617**

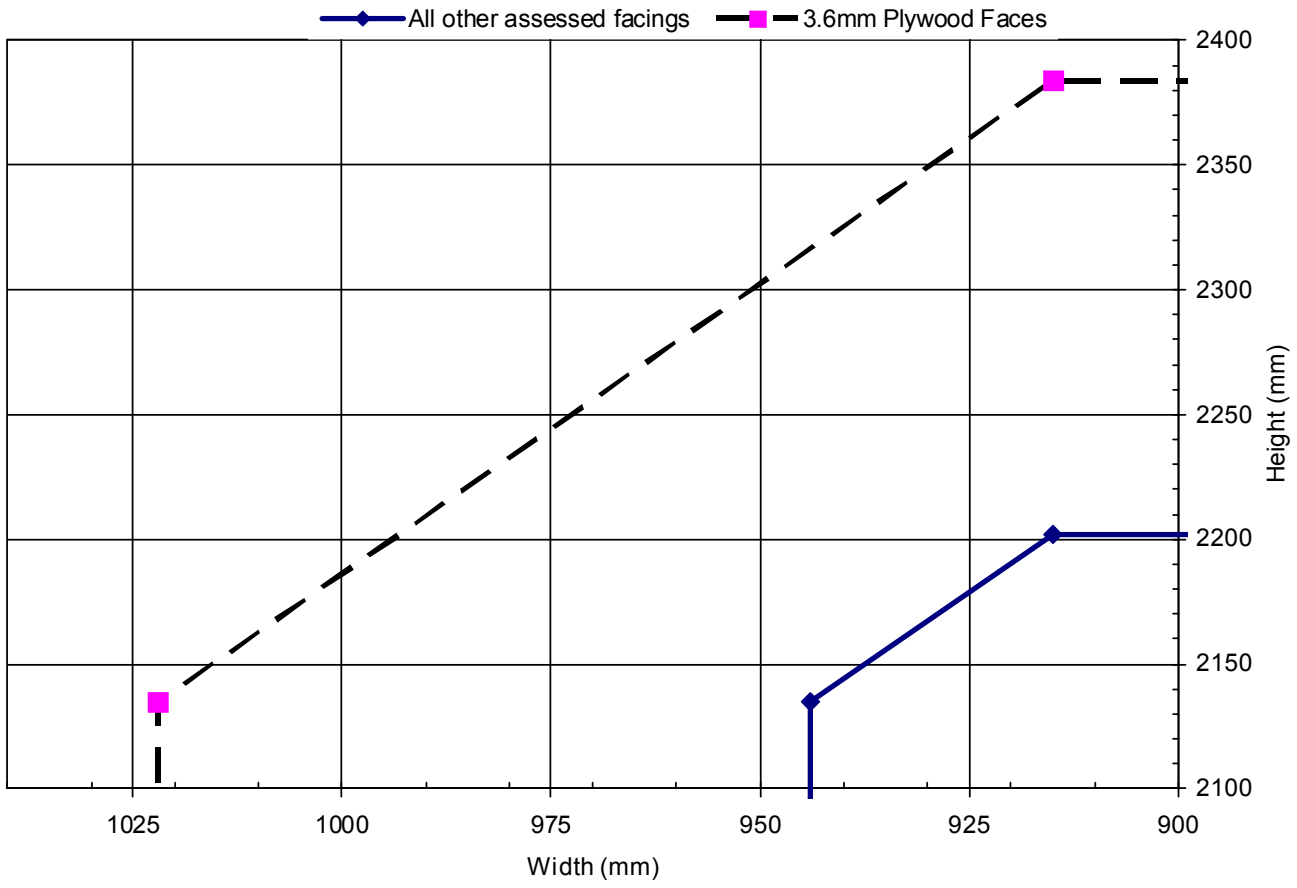
**Head:** 1 No 25 x 4mm seal fitted centrally in the leaf edges or frame reveal.

**Jambs:** 1 No 25 x 4mm seal fitted centrally in the leaf edges or frame reveal.

**Meeting Edges:**
**Square** - 1 No 20 x 4mm seal fitted centrally in one meeting edge.
**Rebated** -1 No 10 x 4mm seal fitted centrally in the rebate of both leaf edges.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



## Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets
### Latched & Unlatched Single Acting & Double Acting Double Doorsets – Pyroplex Rigid Box Seal

| Facing Types: 3.6mm Plywood, 6mm Plywood, 6mm MDF | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSADD | From: | 2400 | x | 1258 |
| | | To: | 2990 | x | 1000 |
| | ULSADD & DADD | From: | 2400 | x | 1233 |
| | | To: | 2940 | x | 1000 |
| Maximum Overpanel height (mm) | | Transomed | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

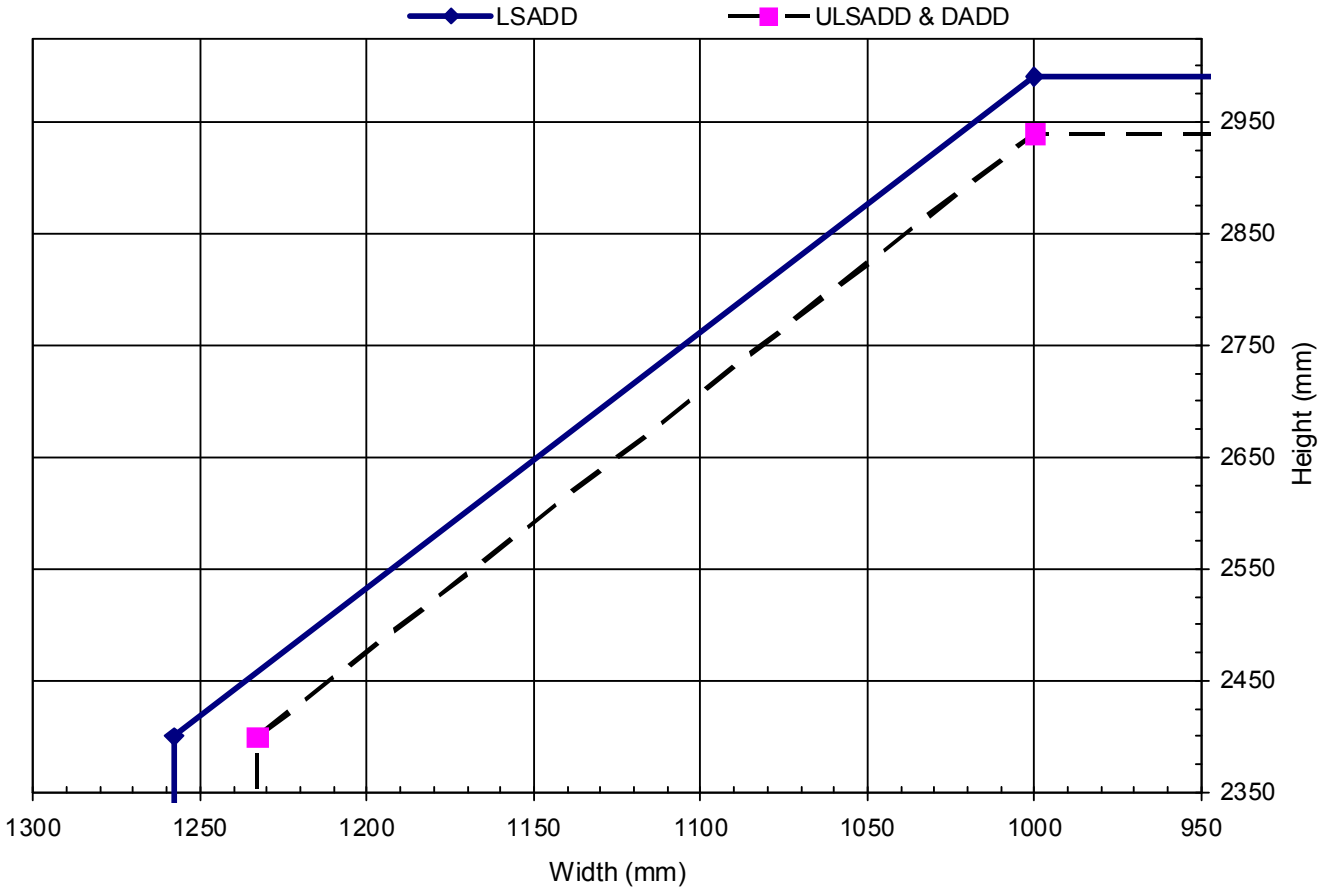
**Head:** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in the leaf edge or frame head.

**Jambs:** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in the each leaf edge or frame reveal.

**Meeting Edges:**
**Square:** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in one leaf edge only.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**



# Pacific Rim Wood Ltd – 'Flamebreak' 30 Doorsets

## Latched & Unlatched Single Acting & Double Acting Double Doorsets + Overpanels – Pyroplex Rigid Box Seal

| Facing Types: 3.6mm Plywood | | | | | |
|---|---|---|---|---|---|
| Leaf Sizes | Configuration | | Height (mm) | | Width (mm) |
| | LSADD + OP | From: | 2400 | x | 1208 |
| | | To: | 2890 | x | 1000 |
| | ULSADD & DADD + OP | From: | 2400 | x | 1183 |
| | | To: | 2840 | x | 1000 |
| Maximum Overpanel height (mm) | | | 1500 | | |
| Glazing | | Maximum Glazed Area: | 1.15m$^2$ | | |
| | | Approved systems: | See section 7 and appendix B | | |
| Frame specification | | Min. Section (mm): | 70 x 32 | 70 x 32 | 70 x 30 |
| | | Material: | Softwood | Hardwood | MDF |
| | | Min. Density (kg/m$^3$): | 450 | 450 | 700 |

**Intumescent Materials: PVC encapsulated Pyroplex Rigid Box Seal**

**Head:**
**Square -** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in the leaf edge or bottom of overpanel.
**Rebated**:
**Leaves** - 2 No 10 x 4mm with one strip centrally fitted on the top of the upstand of the rebate and one centrally in the bottom of the rebate.

**Jambs:** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in the each leaf edge or frame reveal.

**Meeting Edges:** 2 No 10 x 4mm PVC encapsulated Pyroplex fitted centrally 10mm apart in one leaf edge only.

**Hardware Protection**: see section 11

**Maximum Door Leaf Size**