

IFC FIELD OF APPLICATION REPORT

PAR/22273/01

| | |
|---------------------------|-------------------------------------|
| Prepared For: | VLine Doorsets Ltd |
| Product/System: | VLine Standard 30 Timber Door Range |
| Assessed Performance: | 30 Minutes Fire Resistance |
| Fire Resistance Standard: | BS476: Part 22: 1987 |

International Fire Consultants Limited
Park Street Business Centre
Park Street
Princes Risborough
Buckinghamshire
HP27 9AH

Confidence in fire safety
www.ifcgroup.com

+44 (0)1844 275500
info@ifcgroup.com

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International Fire Consultants Limited

Park Street Business Centre
Park Street
Princes Risborough
Buckinghamshire
HP27 9AH
Registered No: 2194010

+44 (0)1844 275500

info@ifcgroup.com

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|--------------------------|--|
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| Prepared For: | VLine Doorsets Ltd |
| Client Address: | Unit 203, Pointon Way Stonebridge Cross Droitwich Worcestershire WR9 0LW |
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1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of VLine Doorsets Ltd, to define the Field of Application for the VLine Standard 30 door range, comprising timber door leaves installed in timber-based frames, that are required to provide 30 minutes fire resistance performance, when adjudged against BS476: Part 22: 1987.

This assessment has been produced using the principles outlined in the [Passive Fire Protection Forum \(PFPF\): 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, 2021, Industry Standard Procedure'](#).

When establishing the variations in the construction that can achieve the required fire resistance performance, IFC complies with the principles found in the following documents:

- [BS ISO/TR 12470-2: 2017 'Fire resistance tests - Guidance on the application and extension of results from tests conducted on fire containment assemblies and products. Part 2: Non-load bearing elements'](#)
- [EN 15725: 2010 'Extended application reports on the fire performance of construction products and building elements'](#)

It is proposed that variations to the tested specifications, as described in the following sections, may be accommodated into door assemblies, without reducing their potential to achieve a 30 minute integrity rating, if tested in accordance with the method and criteria of BS476: Part 22: 1987.

The omission of information on any components or manufacturing methods does not imply a lack of approval of those details, but these would need to be the subject of a separate analysis. Only variations specifically mentioned are supported by this assessment document, all other aspects must otherwise be as proven in tests summarised herein.

It is more onerous to test timber door assemblies, hinged or pivoted, with the specimen installed with the leaf opening in towards the furnace. Testing in this orientation is therefore incorporated into Field of Application Reports to cover doors opening in the opposite direction. The principle is only applicable when the door construction, and any features within the door leaf, such as glazing, are symmetrical.

Unless stated otherwise, herein, this Field of Application considers the scope of approval for door assemblies that may be installed in either orientation, that being with either face exposed to fire conditions.

2. TEST EVIDENCE

The test evidence used to support this Field of Application Report is summarised in Appendix C of this report.

3. SCOPE OF APPROVAL

3.1 Door Assembly Configurations

| General Requirements/Notes |
|---|
| <ul style="list-style-type: none"> The table below provides an overview of the approved door assembly configurations when using a typical VLine Standard 30 door assembly installed within a timber-based frame. The approved leaf configurations may be further restricted when specific design details, leaf/frame facings and/or hardware items are included. Figures A01 to A04 in Appendix A outline the full scope of door assembly configurations approved by this report. Flush overpanels are permitted with corresponding leaf sizes outlined for that particular configuration. Optional transomed overpanels are permitted across all of the door assembly configurations approved. |

| Configuration | | Frame Material | |
|---|-----------|----------------|-----|
| Description | Code | Timber | MDF |
| Latched, Single Acting, Single Leaf Without Flush Overpanel | LSASD | ✓ | ✓ |
| Unlatched, Single Acting, Single Leaf Without Flush Overpanel | ULSASD | ✓ | ✓ |
| Latched, Single Acting, Single Leaf With Flush Overpanel | LSASD+OP | ✓ | ✓ |
| Unlatched, Single Acting, Single Leaf With Flush Overpanel | ULSASD+OP | ✓ | ✓ |
| Latched, Single Acting, Double Leaf Without Flush Overpanel | LSADD | ✓ | ✓ |
| Unlatched, Single Acting, Double Leaf Without Flush Overpanel | ULSADD | ✓ | ✓ |
| Latched, Single Acting, Double Leaf With Flush Overpanel | LSADD+OP | ✓ | ✓ |
| Unlatched, Single Acting, Double Leaf With Flush Overpanel | ULSADD+OP | ✓ | ✓ |

3.2 Maximum Assessable Door Leaf Sizes

This Field of Application Report is based on fire resistance tests conducted on the VLine Standard 30 door design, which have been analysed using the empirically derived, non-construction specific methodologies which form the basis of IFC’s analysis. These methodologies allow the data obtained from the fire test evidence to be evaluated to determine permissible door leaf sizes, without any additional enhancements.

The calculated envelopes of assessed leaf dimensions for each door assembly configuration covered by this Field of Application Report are given in Appendix A.

Double door assemblies may each be of the same width, up to the maximum width indicated in Appendix A. For unequal pairs there is no limit on the ratio of leaf widths, (although the large leaf must still be within the limitations in Appendix A). The width of the small leaf shall not be less than 400mm, since this will affect its vertical stability relative to that of the larger leaf.

4. VLINE STANDARD 30 CONSTRUCTIONAL DETAILS

Constructional specifications for the VLine Standard 30 door type can be found in the tables below.

Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be $11 \pm 2\%$ for UK market, (or to suit internal joinery moisture content specification of export countries).

4.1 Core Construction

4.1.1 Leaf Thickness

| Minimum Leaf Thickness |
|------------------------|
| 45mm |

| Additional Requirements/Notes |
|---|
| <ul style="list-style-type: none"> The dimension above excludes the thickness of the decorative leaf facings detailed in Section 4.3 |

4.1.2 Leaf Core Material

| Material | Minimum Density | Dimensions |
|----------------------|----------------------|------------|
| Flaxboard (E1 or E0) | 320kg/m ³ | 35mm thick |

| Additional Requirements/Notes |
|---|
| <ul style="list-style-type: none"> A variation of $\pm 10\%$ is permitted on the minimum core density detailed above The flaxboard core may include 1no horizontal joint positioned no higher than 750mm up from the base of the leaf and the smaller core section must be a minimum of 100mm wide |

4.1.3 Structural Leaf Facings

| Material | Minimum Density | Dimensions | Facing Adhesive |
|----------|----------------------|-------------------|-------------------------|
| MDF | 700kg/m ³ | Minimum 4mm thick | Polyvinyl acetate (PVA) |
| HDF | 850kg/m ³ | | |

4.1.4 Stiles and Rails

| Component | Material | Minimum Density | Dimensions | |
|-----------|-------------------------|----------------------|------------------|-------------------------|
| Rails | Finger Jointed Softwood | 450kg/m ³ | Inner | 45mm wide x 35 thick |
| | | | Outer | 40-45mm wide x 35 thick |
| Stiles | Finger Jointed Softwood | 450kg/m ³ | Inner (optional) | 45mm wide x 35 thick |
| | | | Outer | 40-45mm wide x 35 thick |

Additional Requirements/Notes

- Doors must include top and bottom rails as well as stiles to both vertical leaf edges
- Stiles must extend the full height of the door leaf and the rails located between the stiles
- Stiles and rails must be butt jointed and stapled to one another

4.2 Door Lippings

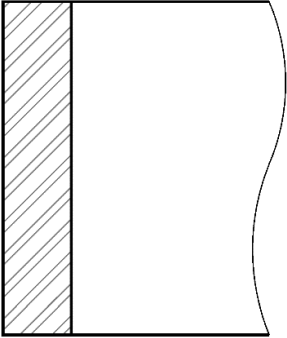
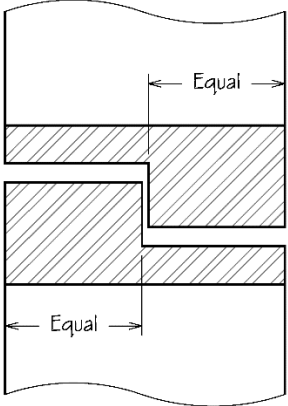
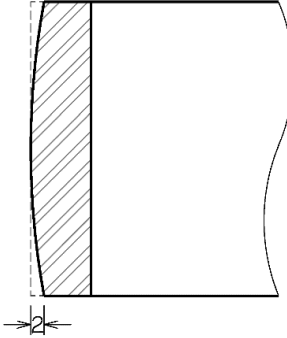
4.2.1 Timber Door Lippings – General

| Material | Minimum Density | Minimum Thickness | Profile | Lipping Adhesive |
|----------|----------------------|------------------------|------------------------|--|
| Hardwood | 640kg/m ³ | Refer to Section 4.2.2 | Refer to Section 4.2.2 | <ul style="list-style-type: none"> • Urea formaldehyde • Phenol formaldehyde • Polyurethane |

Additional Requirements/Notes

- Lippings must be installed to both vertical leaf edges
- Lippings may also be applied to the top and/or bottom leaf edges, if required
- Lippings must be applied to the leaf head/s and bottom edge of the overpanel when a flush overpanel is included in the door configuration
- Installed lippings may be reduced in thickness for site installation purposes, provided the minimum lipping thickness detailed in Section 4.2.2 is maintained
- There must be no gaps present between the core and lippings

4.2.2 Timber Door Lippings – Lipping Thicknesses and Edge Profiles

| Edge Type L30/1 | Edge Type L30/2 | Edge Type L30/3 |
|---|---|---|
|  |  |  |
| Edge Profile | | |
| Square | Equal Rebate | Shallow Radius |
| Permitted Lipping Location | | |
| Door leaf and overpanel edges (See Section 4.2.1) | Interface between leaf head and flush overpanel | Meeting stiles of double doors |
| Lipping Thickness | | |
| 6-10mm | 18-24mm with 12mm high equal width rebates | 6-10mm |
| Additional Requirements/Notes | | |
| | Hardware is not permitted to be fitted in a rebated leaf/overpanel interface | The radius shall not remove more than 2mm thickness of lippings on the door face. |

4.3 Decorative Leaf Facings

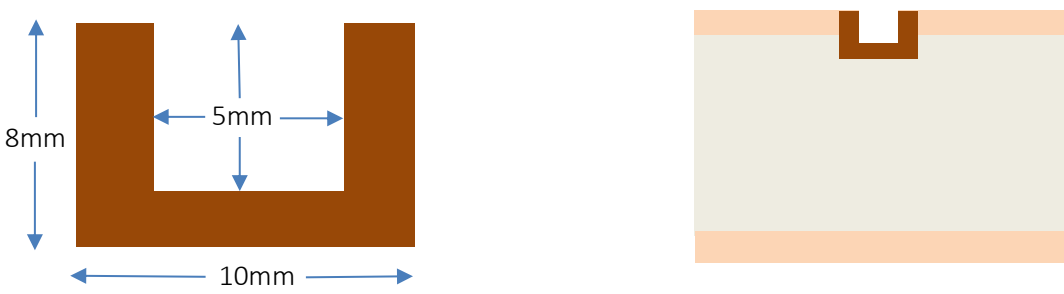
| Component/Area | Material | Maximum Thickness |
|--|------------------------------|-------------------|
| Leaf faces only (These are in addition to the 45mm leaf thickness) | Timber Veneer | 2mm |
| | High Pressure Laminate | 2mm |
| | PVC Laminates (e.g. Acrovyn) | 2mm |
| | Paper | 1mm |
| | Decorative Foil | 0.5mm |

| Additional Requirements/Notes |
|--|
| <ul style="list-style-type: none"> Decorative facing materials must not extend onto the leaf edges Decorative facing materials must not be applied to, or oversail, the glazing beads (with the exception of pvc clad beads as outlined in Section 4.8.4) With the exception of push/kick plates (Appendix B), metallic facings are not permitted |

4.4 Decorative Leaf Finishes

| Component/Area | Material | Maximum Thickness |
|--|----------|--|
| Leaf faces, leaf edges and glazing beads | Paint | 0.5mm, or a maximum of 5 coats, whichever is greater |
| | Lacquer | |
| | Varnish | |

4.5 Feature Grooves With Timber Inserts

| | | |
|---|--------------------|--|
|  | | |
| Maximum Size | Feature Groove | Maximum 5mm wide x 5mm deep |
| | Insert Recess | 10mm wide x 8mm thick hardwood glued in position using PVA adhesive |
| Groove Quantity/ Orientation/Margins | Vertical Grooves | Maximum 2no grooves, minimum 100mm in from the vertical leaf edges |
| | Horizontal Grooves | Maximum 2no grooves, minimum 250mm from the horizontal leaf edges |
| Approved Leaf Size and Configurations | | All approved door configurations up to a maximum leaf height of 2200mm and only to be fitted into one leaf face only |
| Additional Requirements/Notes | | Vertical and horizontal grooves may intersect each other |

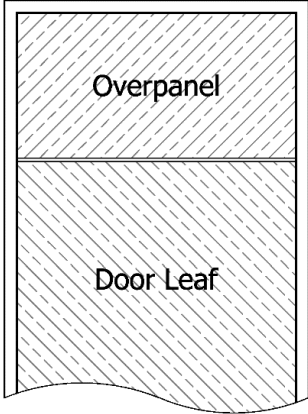
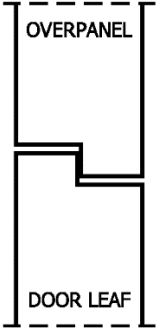
4.6 Overpanels

4.6.1 Overpanel Size, Configuration and Specification

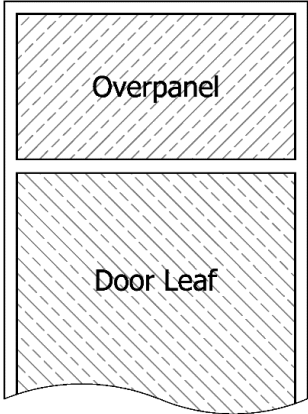
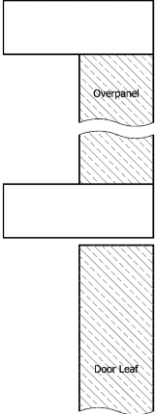
| General Requirements/Notes |
|---|
| <ul style="list-style-type: none"> Overpanels must be of the same construction as the door leaf (refer to Section 4.1) Flush overpanels must always be on the same plane as the door leaf/leaves below Flush overpanels must have a rebated junction with the overpanel comprising equal width, 12mm high rebates Only transomed overpanels may be offset from the plane of the door leaf |

| Maximum Overpanel Size | |
|------------------------|------------------------|
| Single Door Assemblies | Double Door Assemblies |
| 2000mm high | 1500mm high |

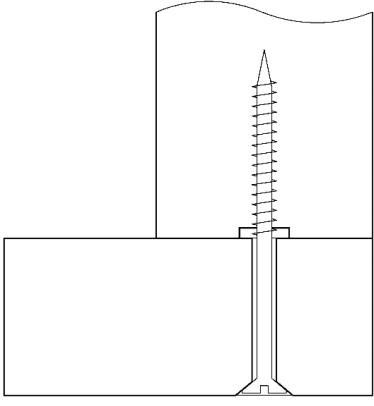
4.6.2 Flush Overpanels

| Frame Material Options | Approved Leaf Configurations |
|--|--|
| Softwood, Hardwood or MDF | <ul style="list-style-type: none"> • Single or double leaf • 12mm high equal width rebates |
|  |  |

4.6.3 Transomed Overpanels

| Transom Material Options | Approved Leaf Configurations |
|---|---|
| Softwood, Hardwood or MDF | Single or double leaf |
| Minimum Transom Size | Transom Joint |
| 70mm wide x 38mm thick | Mortice and tenon or trench joint |
|  |  |

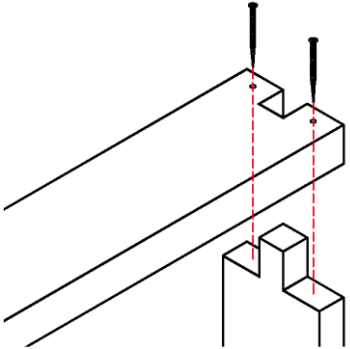
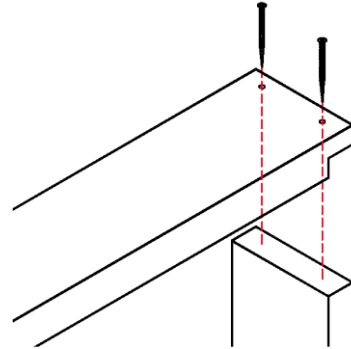
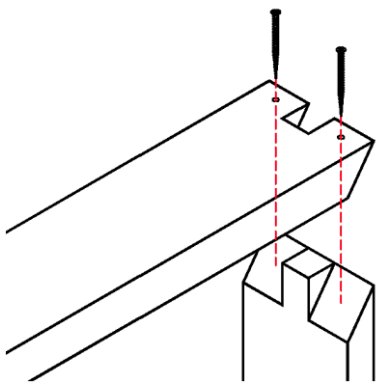
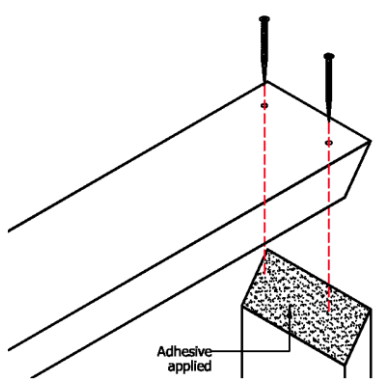
4.6.4 Overpanel Fixing Options

| Screw Fixed Overpanels | | |
|---|--|--|
|  | Fixing Requirements | |
| | Minimum Screw Size | 5mm x 70mm steel screws |
| | Minimum Quantity of Fixings | 2no screws per overpanel edge |
| | Fixing Positions | Maximum 100mm from each corner and on maximum 400mm centres thereafter |
| Fixing Penetration | Minimum 40mm of screw penetration into the central thickness of the overpanel edge | |

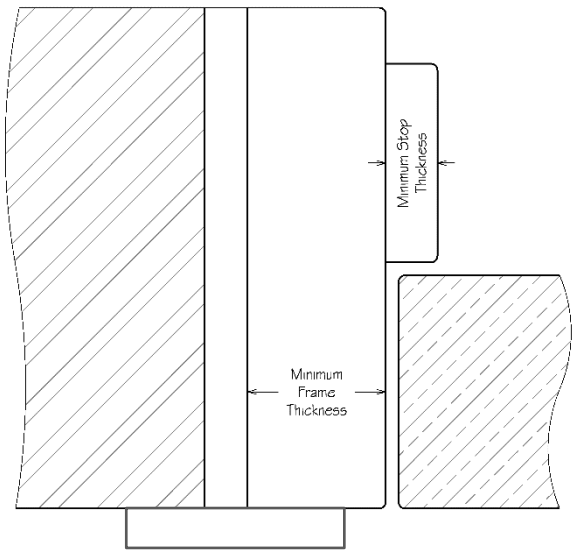
4.7 Door Frames

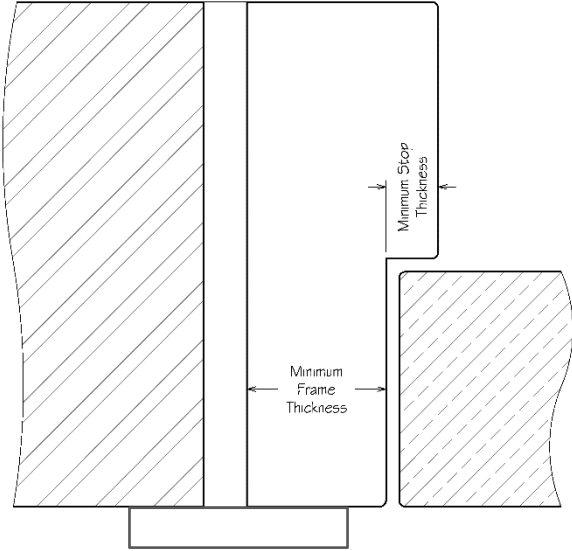
4.7.1 Timber Door Frames – Head Joints

- The frame head must be secured to each jamb using 2no. minimum 5mm x 80mm screws
- In addition to screw fixings, mitred joints must also be glued with cross-linking adhesive e.g. Polyurethane or Urea Formaldehyde

| Mortice and Tenon Joint | Housed/Lapped Joint |
|---|--|
|  |  |
| OMEK Joint | Mitred Joint |
|  |  |

4.7.2 Timber Door Frames – Specifications and Profiles

| Frame Profile F30/1 | | | |
|---|---------------------|----------------------|----------------------|
|  | Frame Material | Softwood or Hardwood | MDF |
| | Minimum Density | 450kg/m ³ | 700kg/m ³ |
| | Minimum Thickness | 30mm | 30mm |
| | Minimum Frame Depth | 100mm | 100mm |
| | Minimum Stop Depth | 12mm | 12mm |
| Additional Requirements/Notes | | | |
| <ul style="list-style-type: none"> The minimum frame thickness detailed above excludes the door stop The doorstop is to comprise the same material as the door frame and must be fixed in place using 40mm long steel pins at minimum 300mm centres Minimum 44mm wide x 18mm thick architraves to be fitted comprising softwood, hardwood or MDF to the material specification outlined in the table above | | | |

| Frame Profile F30/2 | | | |
|---|---------------------|----------------------|----------------------|
|  | Frame Material | Softwood or Hardwood | MDF |
| | Minimum Density | 450kg/m ³ | 700kg/m ³ |
| | Minimum Thickness | 30mm | 30mm |
| | Minimum Frame Depth | 100mm | 100mm |
| | Minimum Stop Depth | 12mm | 12mm |
| Additional Requirements/Notes | | | |
| <ul style="list-style-type: none"> The minimum frame thickness detailed above excludes the integral door stop. Minimum 44mm wide x 18mm thick architraves to be fitted comprising softwood, hardwood or MDF to the material specification outlined in the table above | | | |

4.7.3 Timber Door Frames – Decorative Facings

| Decorative Facings | |
|--------------------|-------------------|
| Material | Maximum Thickness |
| Timber veneer | 0.7mm |
| HPL | 0.7mm |
| Paper | 0.4mm |

4.7.4 Timber Door Frames – Decorative Finishes

| Decorative Finishes | |
|---------------------|---|
| Material | Maximum Thickness |
| Paint | 0.5mm, or a maximum of 5 coats whichever is greater |
| Varnish | |
| Lacquer | |

4.8 Glazed Apertures

4.8.1 General

| General Requirements/Notes |
|--|
| <ul style="list-style-type: none"> The tables displayed in Section 4.8.3 detail the permitted combinations of glass type, glazing system and bead profile The maximum permitted glazed aperture dimensions are detailed within each individual table. Corresponding aperture widths/heights will need to be adjusted until the proposed aperture area falls within the maximum aperture area detailed within the relevant table. The maximum aperture width and maximum aperture height must not be combined, as the resulting figure will always exceed the maximum permitted aperture area. Drawings for the approved glazing bead profiles along with the required bead fixing methods can be found in Section 4.8.4 All glass is to be installed in accordance with the manufacturer’s instructions for expansion allowance, setting blocks, silicone pointing etc |

4.8.2 Glazed Aperture Shape

| General Requirements/Notes |
|---|
| <ul style="list-style-type: none"> The leaves are approved for the incorporation of glazing with shapes other than rectangular, subject to the margins and total area of the glazing per leaf, falling within the parameters outlined in the tables displayed in Section 4.8.3 The method of forming the curved beads must remain as tested Care must be taken to ensure the glass type specified is suitable for installation in non-rectangular configurations |

4.8.3 *Glazed Apertures – Approved glass types, glazing systems and bead profiles*

| IFC Glazing System Ref | | Glazing System | | | | Manufacturer | | | Glazing System Size | | | | | | | | | |
|------------------------|------------|----------------|---------------------|----------------------|--|--|--------------------------|-------------------------|-------------------------------------|--------------------------------------|--|---|------------------------|-------|-------|-------|-------|--|
| S30/1 | | STS 105GT(3) | | | | Sealed Tight Solutions | | | 9mm wide x 3mm thick | | | | | | | | | |
| Glass Specification | | | | | | Glazed Aperture Dimensions | | | | | | | Approved Bead Profiles | | | | | |
| Glass Thickness (mm) | Glass Type | Manufacturer | Integrity (minutes) | Insulation (minutes) | Max Area Single Aperture (m ²) | Max Area Multiple Aperture (m ²) | Max Aperture Height (mm) | Max Aperture Width (mm) | Min Distance Between Apertures (mm) | Min Distance to Leaf Edge (Top) (mm) | Min distance to leaf edge (Sides) (mm) | Min distance to leaf edge (Bottom) (mm) | B30/1 | B30/2 | B30/3 | B30/4 | B30/5 | |
| 7.9 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.7 | 0.7 | 1596 | 598 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |

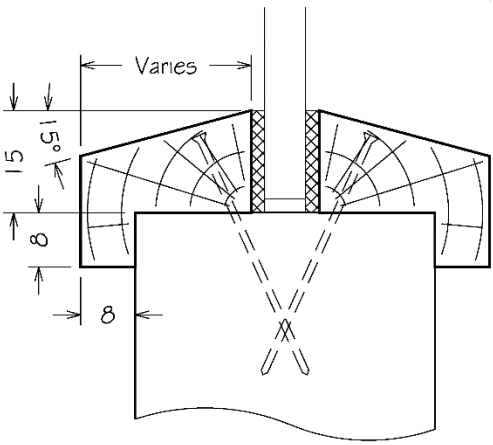
| IFC Glazing System Ref | | | Glazing System | | | | | Manufacturer | | | | | Glazing System Size | | | | | |
|------------------------|------------|----------------|---------------------|----------------------|--|--|--------------------------|-------------------------|-------------------------------------|--------------------------------------|--|---|-----------------------|------------------------|-------|-------|-------|--|
| S30/2 | | | Therm-A-Glaze 45 | | | | | Intumescent Seals Ltd | | | | | 10mm wide x 2mm thick | | | | | |
| Glass Specification | | | | | Glazed Aperture Dimensions | | | | | | | | | Approved Bead Profiles | | | | |
| Glass Thickness (mm) | Glass Type | Manufacturer | Integrity (minutes) | Insulation (minutes) | Max Area Single Aperture (m ²) | Max Area Multiple Aperture (m ²) | Max Aperture Height (mm) | Max Aperture Width (mm) | Min Distance Between Apertures (mm) | Min Distance to Leaf Edge (Top) (mm) | Min distance to leaf edge (Sides) (mm) | Min distance to leaf edge (Bottom) (mm) | B30/1 | B30/2 | B30/3 | B30/4 | B30/5 | |
| 7.9 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.29 | 0.7 | 811 | 486 | 126 | 300 | 150 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 7.9 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.37 | 0.7 | 817 | 612 | 126 | 300 | 150 | 350 | ✗ | ✓ | ✓ | ✗ | ✗ | |
| 7.9 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.41 | 0.7 | 1636 | 341 | 126 | 300 | 150 | 350 | ✗ | ✗ | ✗ | ✓ | ✗ | |
| 7.9 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.44 | 0.7 | 1688 | 351 | 126 | 300 | 150 | 350 | ✗ | ✗ | ✗ | ✗ | ✓ | |
| 12 | Pyrobelite | AGC Flat Glass | 30 | NPD | 0.44 | 0.7 | 1688 | 612 | 126 | 300 | 150 | 350 | ✓ | ✓ | ✓ | ✓ | ✓ | |

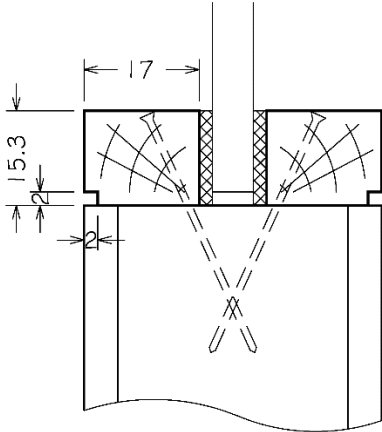
| IFC Glazing System Ref | | | | | Glazing System | | | | | Manufacturer | | | | Glazing System Size | | | | |
|------------------------|--------------|--------------|---------------------|----------------------|--|--|--------------------------|-------------------------|-------------------------------------|--------------------------------------|--|---|-------|------------------------|-------|-------|-------|--|
| S30/5 | | | | | Therm-A-Bead | | | | | Intumescent Seals | | | | 15mm wide x 4mm thick | | | | |
| Glass Specification | | | | | Glazed Aperture Dimensions | | | | | | | | | Approved Bead Profiles | | | | |
| Glass Thickness (mm) | Glass Type | Manufacturer | Integrity (minutes) | Insulation (minutes) | Max Area Single Aperture (m ²) | Max Area Multiple Aperture (m ²) | Max Aperture Height (mm) | Max Aperture Width (mm) | Min Distance Between Apertures (mm) | Min Distance to Leaf Edge (Top) (mm) | Min distance to leaf edge (Sides) (mm) | Min distance to leaf edge (Bottom) (mm) | B30/1 | B30/2 | B30/3 | B30/4 | B30/5 | |
| 7.5 | Pyrodur Plus | Pilkington | 30 | NPD | 0.7 | 0.7 | 1596 | 598 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 10 | Pyrodur | Pilkington | 30 | NPD | 0.7 | 0.7 | 1596 | 598 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 13 | Pyrodur | Pilkington | 30 | NPD | 0.7 | 0.7 | 1596 | 598 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |

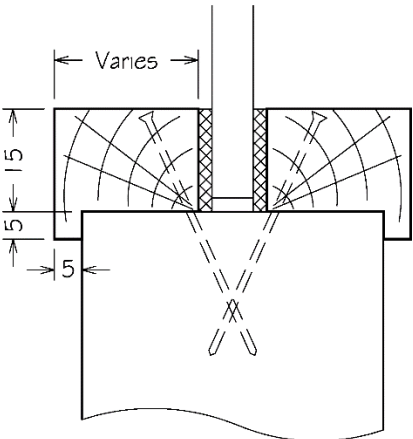
| IFC Glazing System Ref | | | | | Glazing System | | | | | Manufacturer | | | | Glazing System Size | | | | |
|------------------------|--------------|--------------|---------------------|----------------------|--|--|--------------------------|-------------------------|-------------------------------------|--------------------------------------|--|---|-------|------------------------|-------|-------|-------|--|
| S30/6 | | | | | 30049 | | | | | Pyroplex | | | | 14.2mm x 6.4mm | | | | |
| Glass Specification | | | | | Glazed Aperture Dimensions | | | | | | | | | Approved Bead Profiles | | | | |
| Glass Thickness (mm) | Glass Type | Manufacturer | Integrity (minutes) | Insulation (minutes) | Max Area Single Aperture (m ²) | Max Area Multiple Aperture (m ²) | Max Aperture Height (mm) | Max Aperture Width (mm) | Min Distance Between Apertures (mm) | Min Distance to Leaf Edge (Top) (mm) | Min distance to leaf edge (Sides) (mm) | Min distance to leaf edge (Bottom) (mm) | B30/1 | B30/2 | B30/3 | B30/4 | B30/5 | |
| 7.5 | Pyrodur Plus | Pilkington | 30 | NPD | 0.36 | 0.7 | 690 | 690 | 200 | 150 | 150 | 200 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 10 | Pyrodur | Pilkington | 30 | NPD | 0.7 | 0.4 | 1485 | 365 | 200 | 150 | 150 | 200 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 13 | Pyrodur | Pilkington | 30 | NPD | 0.7 | 0.4 | 1485 | 365 | 200 | 150 | 150 | 200 | ✓ | ✗ | ✗ | ✗ | ✗ | |

| IFC Glazing System Ref | | Glazing System | | | | Manufacturer | | | | Glazing System Size | | | | | | | | |
|------------------------|-----------------|-------------------|---------------------|----------------------|--|--|--------------------------|-------------------------|-------------------------------------|--------------------------------------|--|---|-------|------------------------|-------|-------|-------|--|
| S30/7 | | Flexible Figure 1 | | | | Lorient | | | | 13.5mm high x 3.5mm thick | | | | | | | | |
| Glass Specification | | | | | Glazed Aperture Dimensions | | | | | | | | | Approved Bead Profiles | | | | |
| Glass Thickness (mm) | Glass Type | Manufacturer | Integrity (minutes) | Insulation (minutes) | Max Area Single Aperture (m ²) | Max Area Multiple Aperture (m ²) | Max Aperture Height (mm) | Max Aperture Width (mm) | Min Distance Between Apertures (mm) | Min Distance to Leaf Edge (Top) (mm) | Min distance to leaf edge (Sides) (mm) | Min distance to leaf edge (Bottom) (mm) | B30/1 | B30/2 | B30/3 | B30/4 | B30/5 | |
| 6 | Pyran S | Schott | 30 | NPD | 0.7 | 0.7 | 1688 | 612 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 11 | Pyroguard Clear | Pyroguard | 30 | NPD | 0.7 | 0.7 | 1288 | 612 | 126 | 300 | 200 | 350 | ✓ | ✗ | ✗ | ✗ | ✗ | |
| 15 | Pyroguard EI30 | Pyroguard | 30 | 30 | 0.7 | 0.4 | 830 | 365 | 200 | 150 | 150 | 200 | ✓ | ✗ | ✗ | ✗ | ✗ | |

4.8.4 Glazing Bead Profiles and Glazing Bead Fixings

| Glazing Bead B30/1 | Bead Material |
|---|--|
|  <p style="text-align: right;">A34</p> | Hardwood (minimum density 640kg/m ³) |
| | Bead Fixings |
| | 40mm x 1.8mm steel pins or 40mm x 4mm steel screws |
| | Fixing Positions |
| | <ul style="list-style-type: none"> • Maximum 125mm centres and 50mm from corners • 35 degrees relative to the plane of the glass |
| | Glazing System |
| | Refer to Section 4.8.3 |
| Additional Requirements/Notes | |
| | |

| Glazing Bead B30/2 | Bead Material |
|--|---|
|  <p style="text-align: right;">A66</p> | Hardwood (minimum density 640kg/m ³) |
| | Bead Fixings |
| | 40mm x 1.8mm steel pins or 40mm x 4mm steel screws |
| | Fixing Positions |
| | <ul style="list-style-type: none"> • Maximum 150mm centres and 50mm from corners • 35-40 degrees relative to the plane of the glass |
| | Glazing System |
| | Refer to Section 4.8.3 |
| Additional Requirements/Notes | |
| | |

| Glazing Bead B30/3 | Bead Material |
|---|---|
|  <p style="text-align: right;">A50</p> | Hardwood (minimum density 640kg/m ³) |
| | Bead Fixings |
| | 40mm x 1.8mm steel pins or 40mm x 4mm steel screws |
| | Fixing Positions |
| | <ul style="list-style-type: none"> • Maximum 150mm centres and 50mm from corners • 35-40 degrees relative to the plane of the glass |
| | Glazing System |
| | Refer to Section 4.8.3 |
| Additional Requirements/Notes | |
| | |

| Glazing Bead B30/4 | | Bead Material | | | | | | | | | | | | |
|--|---------------------------------|---|---------------------------------|---|--------------------------|---|-------------------------|---|---------------------------|---|---------------|---|------------------|--|
| | | Hardwood (minimum density 640kg/m ³) | | | | | | | | | | | | |
| | | Bead Fixings | | | | | | | | | | | | |
| | | 40mm 1.8mm steel pins or 40mm x 4mm steel screws | | | | | | | | | | | | |
| | | Fixing Positions | | | | | | | | | | | | |
| | | <ul style="list-style-type: none"> Maximum 150mm centres and 50mm from corners 35-40 degrees relative to the plane of the glass | | | | | | | | | | | | |
| | | Glazing System | | | | | | | | | | | | |
| Refer to Section 4.8.3 | | Additional Requirements/Notes | | | | | | | | | | | | |
| <table border="1"> <tr> <td>1</td> <td>7.9-12mm thick Pyrobelite glass</td> <td>4</td> <td>Timber bead at 15mm high</td> </tr> <tr> <td>2</td> <td>6mm thick Acrylic sheet</td> <td>5</td> <td>10 x 2mm Therm-A-Glaze 45</td> </tr> <tr> <td>3</td> <td>2mm thick PVC</td> <td>6</td> <td>40mm pins/screws</td> </tr> </table> | | 1 | 7.9-12mm thick Pyrobelite glass | 4 | Timber bead at 15mm high | 2 | 6mm thick Acrylic sheet | 5 | 10 x 2mm Therm-A-Glaze 45 | 3 | 2mm thick PVC | 6 | 40mm pins/screws | <ul style="list-style-type: none"> PVC cladding must be bonded to the glazing bead and leaf using a thermally softening adhesive e.g. contact adhesive. The 6mm thick Acrylic is to be bonded to the glazing beads using a thermally softening adhesive e.g. contact adhesive. |
| 1 | 7.9-12mm thick Pyrobelite glass | 4 | Timber bead at 15mm high | | | | | | | | | | | |
| 2 | 6mm thick Acrylic sheet | 5 | 10 x 2mm Therm-A-Glaze 45 | | | | | | | | | | | |
| 3 | 2mm thick PVC | 6 | 40mm pins/screws | | | | | | | | | | | |

| Glazing Bead B30/5 | | Bead Material | | | | | | | | | | | | |
|--|---------------------------------|---|---------------------------------|---|----------------------------|---|---------------|---|---------------------------|---|---------------|---|------------------|---|
| | | Hardwood (minimum density 640kg/m ³) | | | | | | | | | | | | |
| | | Bead Fixings | | | | | | | | | | | | |
| | | 40mm x 1.8mm steel pins or 40mm x 4mm steel screws | | | | | | | | | | | | |
| | | Fixing Positions | | | | | | | | | | | | |
| | | <ul style="list-style-type: none"> Maximum 150mm centres and 50mm from corners 35-40 degrees relative to the plane of the glass | | | | | | | | | | | | |
| | | Glazing System | | | | | | | | | | | | |
| Refer to Section 4.8.3 | | Additional Requirements/Notes | | | | | | | | | | | | |
| <table border="1"> <tr> <td>1</td> <td>7.9-12mm thick Pyrobelite glass</td> <td>4</td> <td>Timber bead at 15.5mm high</td> </tr> <tr> <td>2</td> <td>2mm thick PVC</td> <td>5</td> <td>10 x 2mm Therm-A-Glaze 45</td> </tr> <tr> <td>3</td> <td>2mm thick PVC</td> <td>6</td> <td>40mm pins/screws</td> </tr> </table> | | 1 | 7.9-12mm thick Pyrobelite glass | 4 | Timber bead at 15.5mm high | 2 | 2mm thick PVC | 5 | 10 x 2mm Therm-A-Glaze 45 | 3 | 2mm thick PVC | 6 | 40mm pins/screws | <ul style="list-style-type: none"> PVC cladding must be bonded to the glazing bead using a thermally softening adhesive e.g. contact adhesive. The PVC cladding may be applied to one, or both sides, of the glazed aperture. |
| 1 | 7.9-12mm thick Pyrobelite glass | 4 | Timber bead at 15.5mm high | | | | | | | | | | | |
| 2 | 2mm thick PVC | 5 | 10 x 2mm Therm-A-Glaze 45 | | | | | | | | | | | |
| 3 | 2mm thick PVC | 6 | 40mm pins/screws | | | | | | | | | | | |

4.9 Hardware

Hardware items which are approved for use with the V Line Standard 30 timber door assemblies are detailed in Appendix B of this report.

All hardware items must be installed in accordance with the manufacturer’s instructions, except where specific installation requirements or limitations have been detailed by IFC.

4.10 Installation and Supporting Construction

Supporting Construction

The supporting construction may be timber or steel stud plasterboard partition, blockwork, brickwork or concrete walls, but shall be of a type that has been tested or assessed to provide in excess of 30 minutes fire resistance, at the required size, when incorporating door openings. If fitted into timber or steel stud partitions, the method of forming the door assembly aperture must be as tested by the partition and/or door assembly manufacturer

Note Any reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers – this report does not approve use of the proposed door assemblies in proprietary ‘demountable’ partitions, which must be subject to a full and independent appraisal of the particular system and door assemblies therein.

Door Frame Fixing Requirements

Timber door frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm on the vertical edges (minimum 200mm from the top and bottom), and a minimum of one fitted centrally across the width of the frame head of double doors. Screws shall be of sufficient length to penetrate the wall by at least 40mm and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws).

Door Frame Packers

Packers shall be used at all fixing positions, although if combustible or thermally softening packers are employed, they must be cut short and be capped with a layer of approved mastic and maintain compliance with one of the approved back of frame sealing methods given in the following sections.

The fire stopping materials required for the installation, depending on the gaps, as appropriate, and described in following sections, must be fitted tight up to the packers with no gaps. All packers must be tightly fitted with no gaps between individual packers.

Projecting Door Frames/ Door Leaves

The approval in this report does not apply where the wall/partition includes decorative ‘cladding’ on the face of the fire-resisting construction, (e.g. timber panelling on battens, or plasterboard on dabs), such that any part of the frame is aligned within the plane of this decorative cladding.

Architraves

Loose architraves must be fitted to all door assemblies to the specification outlined in Section 4.7.2. The architraves must be pin fixed to the door frame with minimum 40mm long steel pins at minimum 300mm centres or glue fixed to the frame using a crosslinking adhesive.

Door Edge Gaps

| | Between Leaf & Frame | Leaf Meeting Stiles | Overpanel Junctions | Bottom of Door (Fire) | Bottom of Door (Fire & Smoke) |
|-----------|----------------------|---------------------|---------------------|-----------------------|-------------------------------|
| Gap Width | 1.5mm to 4mm | 1.5mm to 4mm | 1.5mm to 4mm | 6mm | 3mm* |

*Gaps in excess of 3mm are permissible provided a suitable smoke seal is included

Door Leaf Alignment

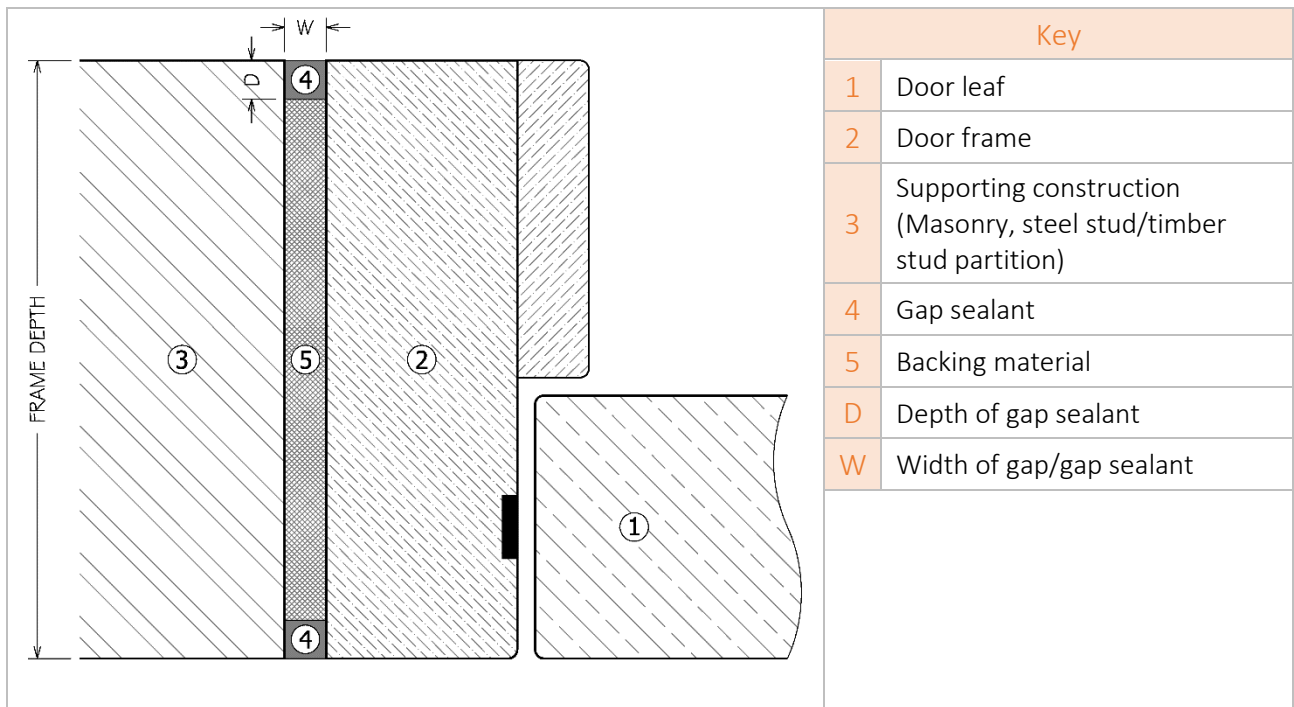
The door assembly design shall be such that when closed, single acting leaves are fully flush within the frame. The face of leaves in double door assemblies shall be flush with each other at meeting stiles when closed.

4.11 Gap Sealing

4.11.1 General

General Requirements/Notes

Gap sealing products must meet **all** of the requirements detailed in Section 4.11.2



4.11.2 Gap Sealing Products – Requirements for Approval

| General Requirements | | | | |
|--|------------------------------------|-----------------------------|-----------------------|-------------------------|
| Gap sealing products used in conjunction with VLine Standard 30 timber door assemblies, must have been successfully fire tested for 30 minutes fire resistance in accordance with BS476: Part 22: 1987 or BS EN 1634-1:2014. In addition, they must meet all of the requirements detailed below; | | | | |
| Fire Test Pressure Regime | | | | |
| Must have been successfully fire tested when sealing a gap located above the neutral pressure axis | | | | |
| Supporting Construction | | | | |
| Must have been successfully fire tested when sealing a linear gap between the rear of a timber frame and a steel/timber stud partition or be representative of the substrate into which it is being used. | | | | |
| Gap Size | | | | |
| Must have been successfully fire tested when sealing a linear gap, equal to, or larger than, that proposed. | | | | |
| Sealant Depth | | | | |
| Must be applied to a depth, equal to, or greater than, that used when it was fire tested and finish flush with the outer face of the door frame. | | | | |
| Backing Material | | | | |
| Tested Backing Material | Permitted Backing Material Options | | | |
| No backing material included | None | CC Polyethylene backing rod | Expanding FR PU foam* | Mineral rock fibre |
| Closed cell polyethylene backing rod | | CC Polyethylene backing rod | Expanding FR PU foam* | Mineral rock fibre |
| Expanded FR PU foam | | | Expanding FR PU foam* | Mineral rock fibre |
| Mineral rock fibre | | | | Mineral rock fibre only |
| * Must have been successfully fire tested when sealing a linear gap between the rear of a timber frame and a steel/timber stud partition, or be representative of the substrate into which it is being used. | | | | |
| Architraves | | | | |
| Tested Architrave Material | Permitted Architrave Material | | | |
| No architraves fitted | None fitted | MDF | Softwood | Hardwood |
| MDF | | MDF | | Hardwood |
| Softwood | | | Softwood | Hardwood |
| Hardwood | | | | Hardwood |

4.12 Intumescent Seals

| Intumescent Seal Types | Approved Manufacturers/Suppliers | Size/Positions |
|--|---|---------------------|
| <ul style="list-style-type: none"> Graphite | <ul style="list-style-type: none"> Sealed Tight Solutions Ltd Odice | Refer to Appendix A |

| Additional Requirements/Notes |
|--|
| <ul style="list-style-type: none"> Intumescent protection is also required to specific items of building hardware – refer to Appendix B |

4.13 Ambient Temperature Smoke Seals

Smoke seals or combined intumescent/smoke seals (using the specification approved in Appendix A), that have been tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 and shown not to leak by more than 3m³/m/hr at 25Pa may be used in conjunction with the proposed door assemblies to provide smoke control.

The orientation of the seals, door edge gaps, degree of hardware interruption, and leaf configuration, will need to be as tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 to achieve the desired level of smoke control, unless these conflict with the intumescent seal widths and positions as described in Appendix A, in which case, the latter shall take precedence.

Test evidence to BS476: Part 22: 1987 shall be available to demonstrate that the smoke seals will not adversely affect the overall fire resistance of timber door assemblies, when fitted in the proposed arrangements.

5. CONCLUSION

It is the opinion of International Fire Consultants Ltd that if the proposed door assemblies comprising VLine Standard 30 door leaves installed in timber door frames were manufactured and installed within the limitations of this Field of Application Report and tested for fire resistance, they would satisfy the integrity criteria of BS476: Part 22: 1987 for 30 minutes.

Partially insulating door assemblies are determined using the criteria given in Section 7 of BS476: Part 22: 1987. These assemblies are evaluated as partially insulating door assemblies on the basis that the 'solid' part of the leaf satisfies the temperature criteria given in Section 10.4 of BS 476: Part 20: 1987 and any non-insulating features, such as glazing, are less than 20% of the surface area of the leaf. The assemblies outlined, herein, are permitted to have glazed areas and air transfer grilles, and so could, therefore, be evaluated to this standard if the maximum total aperture area is less than 20% of the leaf size.

The leaves may include small apertures, up to a maximum of 20% of the leaf size and can be evaluated to Section 7 in BS 476: Part 22: 1987 as partially insulating door assemblies for 30 minutes fire resistance.

The doors can also be assessed to Section 6 of BS476: Part 22: 1987 for a 30 minute performance rating for both integrity and insulation, without apertures in the or with apertures incorporating fully insulating glass.

6. LIMITATIONS

This report addresses itself solely to the ability of the proposed assemblies described to satisfy the criteria of the fire resistance test and does not imply any suitability for use with respect to other unspecified criteria.

It is the responsibility of others to establish whether the proposed product meets any other relevant requirements, including any other requirements for fire performance and life safety, as defined in documents such as the Building Regulations, and the Fire Strategy/Risk Assessment for the project.

This document only considers the door assemblies described, herein, and assumes that the surrounding construction will provide no less restraint than the tested assembly and that it will remain in place and be substantially intact for the full fire resistance period.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to International Fire Consultants Ltd (IFC) the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

As per the guidance outlined in the Passive Fire Protection Forum (PFPF): *'Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence, 2021, Industry Standard Procedure'*, appropriate action has been taken to mitigate the risk of a conflict of interest arising during the preparation of this report. All individuals involved in the production, or subsequent review, of this assessment have declared any perceived conflicts of interest, with regards to the sponsor or subject(s) of this report, prior to working on this project.

The assessor and reviewer have been deemed suitable for involvement in the production of this assessment in accordance with the guidance outlined in the Passive Fire Protection Forum (PFPF): *'Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence, 2021, Industry Standard Procedure'*.

Where the constructional information in this report is taken from details provided to International Fire Consultants Ltd (IFC) and/or from fire resistance test reports referenced herein, it is, therefore, limited to the information given in those documents. It is necessarily dependent upon the accuracy and completeness of that information. Where constructional or manufacturing details are not specified, or discussed, herein, it should not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete door assembly that is manufactured and installed in accordance with this document and offered for fire resistance testing in 'perfect' condition. In practice, management procedures must be in place in any building where the door assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doors must open and close without the use of undue force. The edge gaps/alignment of door leaves must be in accordance with the tolerances defined, herein, when the doors are closed. Any such shortfalls in respect to the condition of the assemblies will invalidate the approval by IFC and may seriously affect the ability of the assemblies to provide the required level of fire resistance performance. Determination of what constitutes wear or damage, and any corrective actions in order to return assemblies to the required condition, should only be carried out following consultation with the manufacturer and IFC.

This report applies to fire door assemblies that are evaluated to BS476: Part 22: 1987; which is an applicable test method currently referenced within guidance to Building Regulations in the United Kingdom, and in building codes in some other countries.

Where the assessed constructions have not been subject to an on-site audit by International Fire Consultants Ltd, it is the responsibility of anyone using this report to confirm that all aspects of the assemblies fully comply with the descriptions and limitations, herein.

Any materials specified in this report have been selected and judged primarily on their fire performance. IFC do not claim expertise in areas other than fire safety. Whilst observing all possible care in the specification of solutions, we would draw the reader's attention to the fact that during the construction and procurement process, the materials used should be subjected to more general examination regarding the wider Health and Safety, and CoSHH Regulations. Designers, manufacturers and installers are reminded of their responsibilities under the CDM Regulations; but particularly with regard to installation and maintenance of heavy or inaccessible items.

This assessment considers the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or self-closing device, or locked shut, as applicable. The door assemblies will only provide the assessed fire performance when in a similar configuration; and it is the responsibility of the building occupants/owner to ensure that this is the case.

This report is provided to the sponsor on the basis that it is a professional independent engineering opinion as to what the fire performance of the construction/system would be should it to be tested to the named standard. It is IFC's experience that such an opinion is normally acceptable in support of an application for building approvals, certainly throughout the UK and in many parts of Europe and the rest of the world.

However, unless IFC have been commissioned to liaise with the Authorities that have jurisdiction for the building in question for the purpose of obtaining the necessary approvals, IFC cannot assure that the document will satisfy the requirements of the particular building regulations for any building being constructed.

It is, therefore, the responsibility of the sponsor to establish whether this evidence is appropriate for the application for which it is being supplied and IFC cannot take responsibility for any costs incurred as a result of any rejection of the document for reasons outside of our control. Early submittal of the Report to the Authorities will minimise any risks in this respect.

7. VALIDITY

This Field of Application Report has been prepared based on International Fire Consultants Ltd's present knowledge of the products described, the stated testing regime and the submitted test evidence.

The assessment is valid initially for a period of five years after which time it is recommended that it be submitted to International Fire Consultants Ltd for re-evaluation. For this reason, anyone using this document after September 2026 should confirm its ongoing validity.

This assessment report is not valid unless it incorporates the declaration, in Section 5, duly signed by the applicant.

Prepared by:



Chris Houchen

BSc AIFireE

Associate Director

International Fire Consultants Ltd. (IFC)

Reviewed by:



David Cooper

BEng (Hons) AIMMM AIFireE ACABE

Associate Director

International Fire Consultants Ltd. (IFC)

8. DECLARATION BY THE APPLICANT

IFC Engineering Assessment Report

PAR/22273/01

Client

VLine Doorsets Ltd

We, the undersigned, confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF), details of which are outlined in the following document;

Passive Fire Protection Forum (PFPF) - Industry Standard Procedure 2021

‘Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence’

- We confirm that any changes which are subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
- We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.
- We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.
- We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

Signature

Name

Position

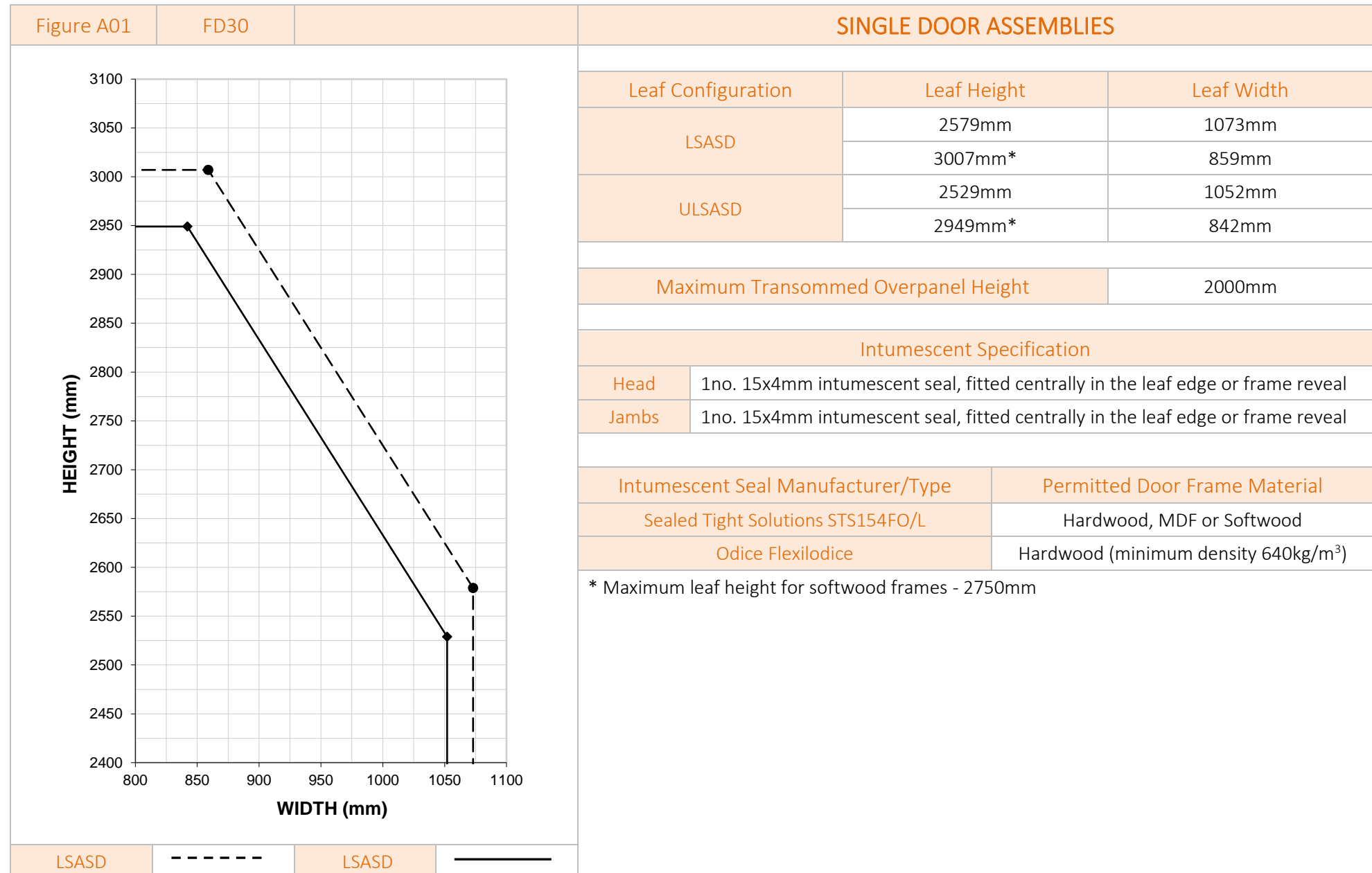
Company name

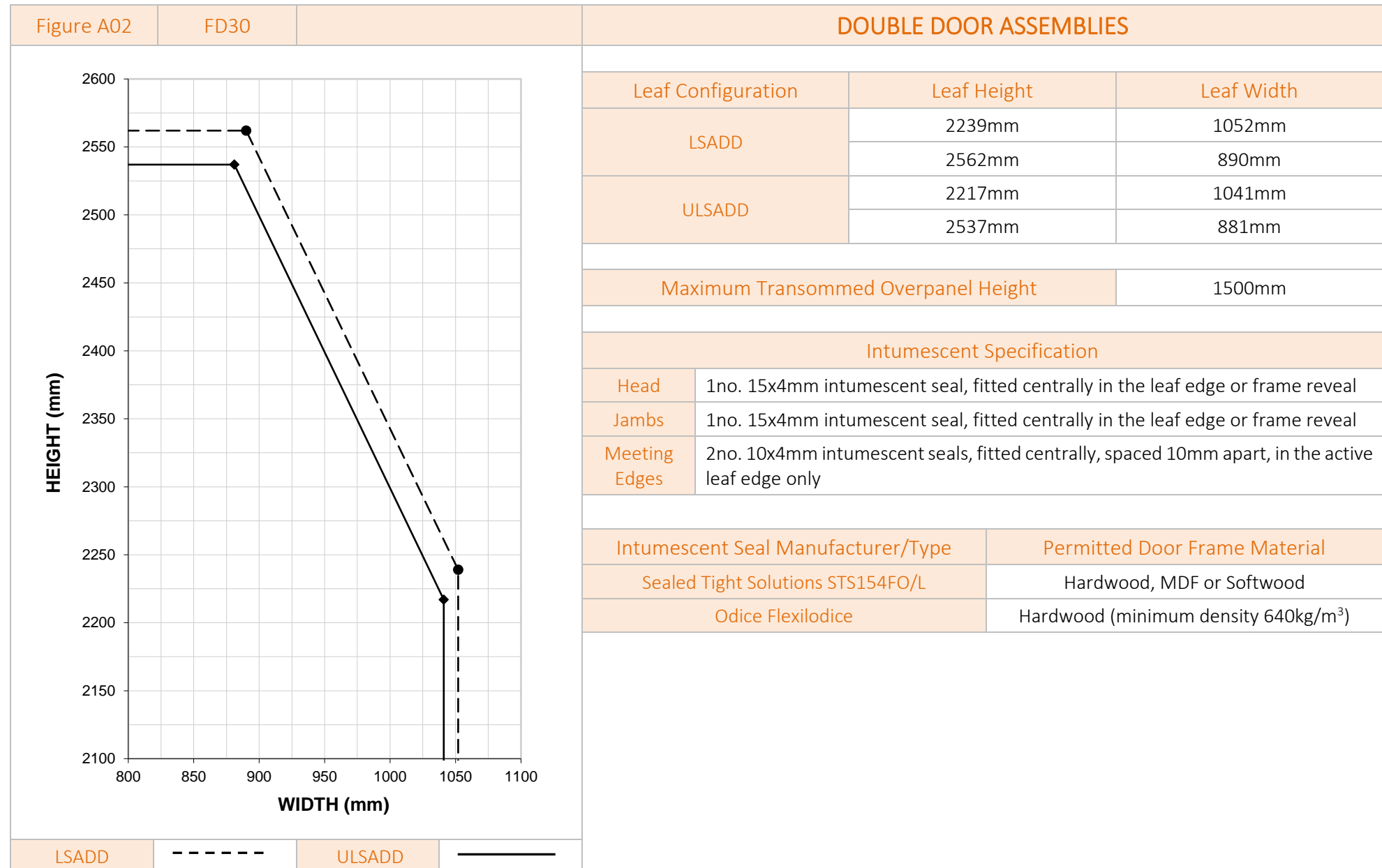
VLine Doorsets Ltd

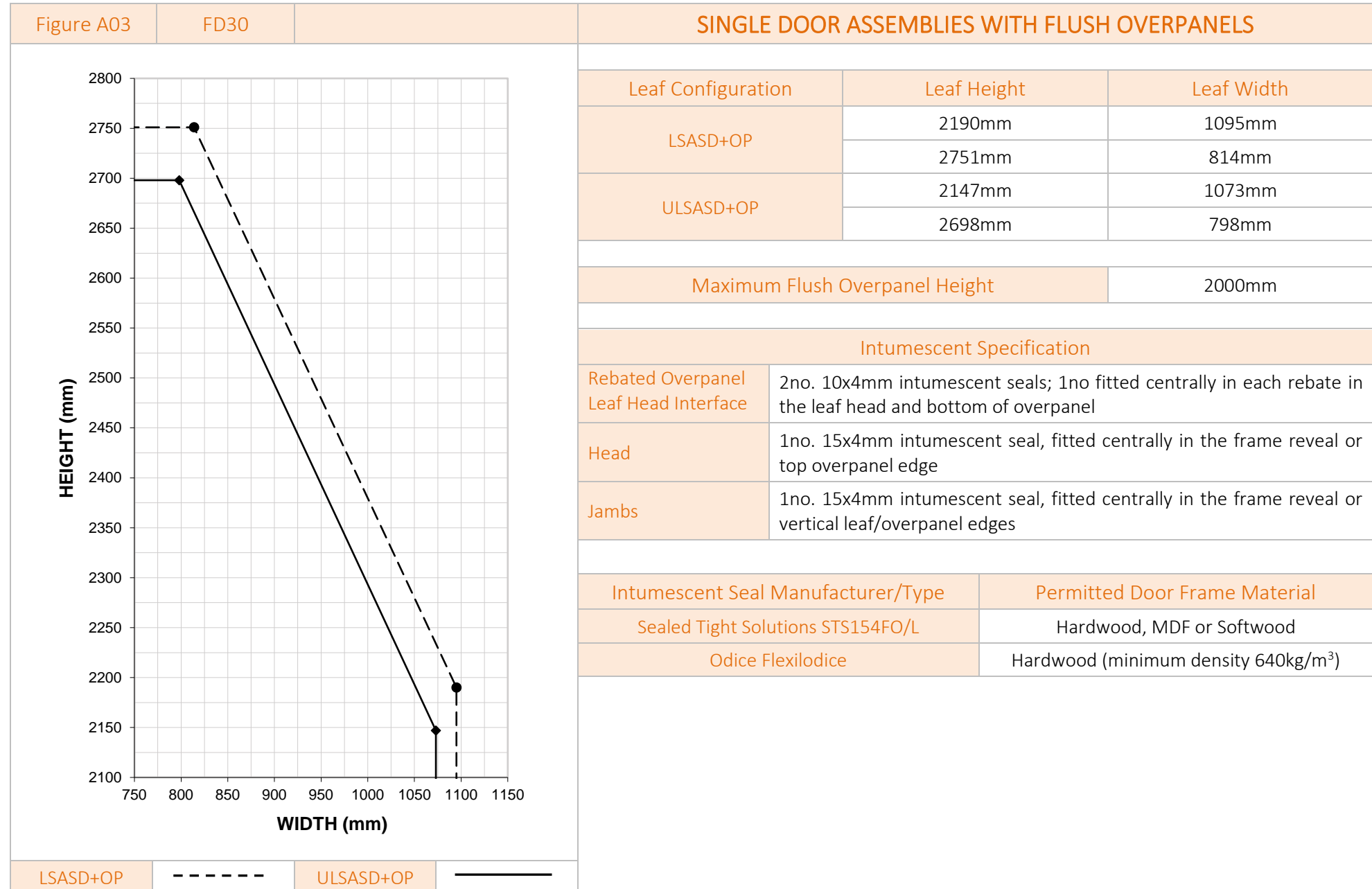
Date

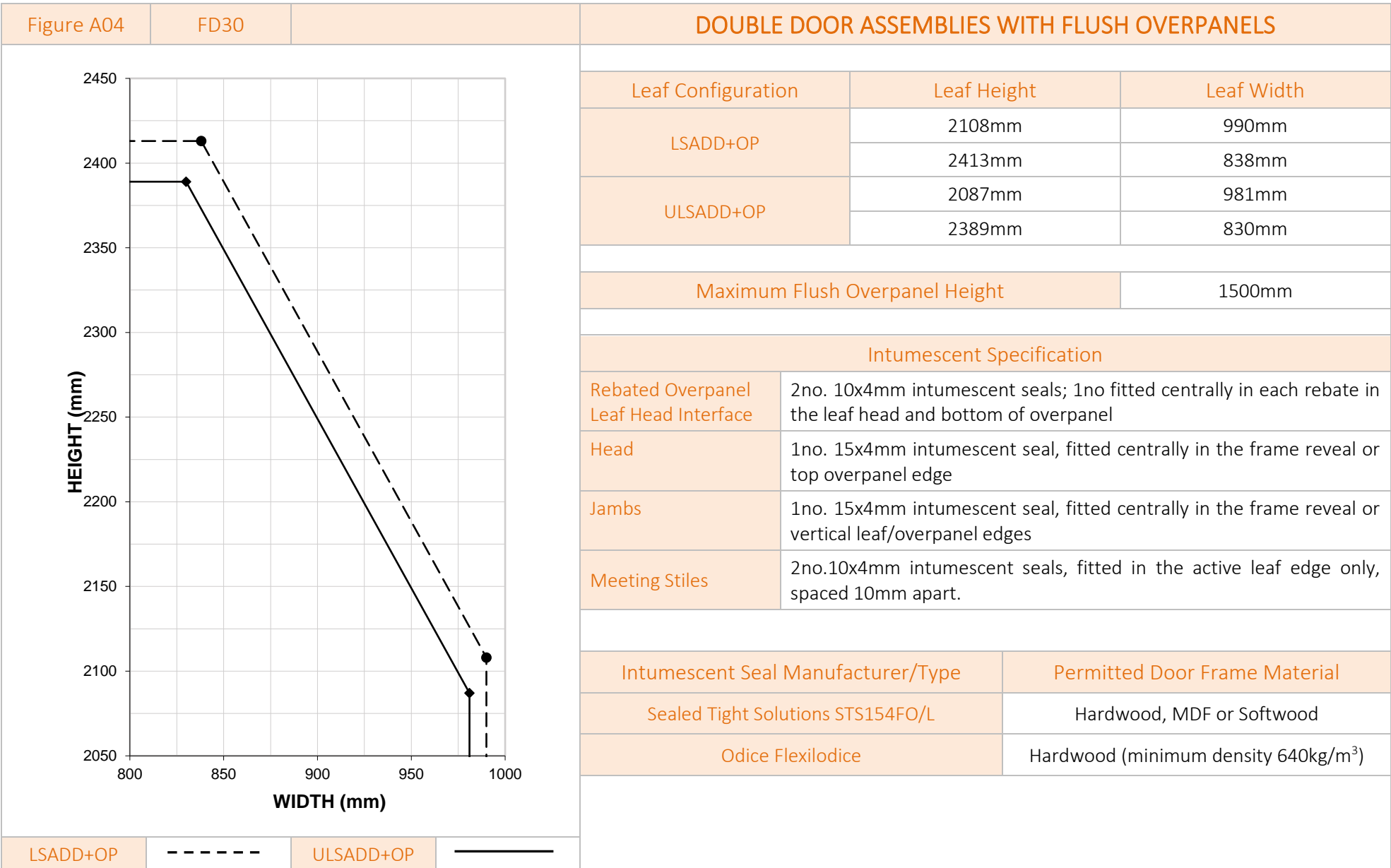
APPENDIX A - LEAF SIZE ENVELOPES AND INTUMESCENT SPECIFICATIONS

| Description | Code | | |
|---|-----------|--|--|
| Latched, Single Acting, Single Leaf Without Flush Overpanel | LSASD | | |
| Unlatched, Single Acting, Single Leaf Without Flush Overpanel | ULSASD | | |
| Latched, Single Acting, Single Leaf With Flush Overpanel | LSASD+OP | | |
| Unlatched, Single Acting, Single Leaf With Flush Overpanel | ULSASD+OP | | |
| | | | |
| Latched, Single Acting, Double Leaf Without Flush Overpanel | LSADD | | |
| Unlatched, Single Acting, Double Leaf Without Flush Overpanel | ULSADD | | |
| Latched, Single Acting, Double Leaf With Flush Overpanel | LSADD+OP | | |
| Unlatched, Single Acting, Double Leaf With Flush Overpanel | ULSADD+OP | | |
| | | | |









APPENDIX B – INSTALLATION OF HARDWARE

B.1 Single Axis Hinges

| Tested and Approved Hardware | |
|---|--|
| <ul style="list-style-type: none"> • Arrone 100 x 36mm lift-off hinges – AR 8782 • Eurospec Enduro 100 x 30mm butt hinges • Eurospec Enduro 102 x 31mm butt hinges | |

| Alternative Hinge Specification | | |
|---------------------------------|--|---|
| Element | Specification/Quantity/Dimensions | |
| Hinge Types | Fixed pin, washered butt, ball bearing butt, lift-off type or journal supported | |
| Blade Height | 89 - 110mm | |
| Blade Width | 30 - 36mm | |
| Blade Thickness | 2.5 - 3.5mm | |
| Material | Brass, Phosphor Bronze, Steel or Stainless Steel | |
| Fixings | Minimum 31mm long x 4mm diameter steel screws | |
| Minimum Number | Leaves up to 2299mm high leaves | 3no hinges |
| | Leaves over 2300mm high | 4no hinges |
| Positions | Top | 120 - 200mm down from the leaf head to the top of the hinge |
| | Intermediate | Either equi-spaced between the top and bottom hinges or second hinge positioned 200 – 250mm below the top hinge and the remaining hinge/s equi-spaced between the second and bottom hinge |
| | Bottom | 175 - 225mm up from the bottom of the leaf to the bottom of the hinge blade |
| Intumescent Protection | None required | |
| Additional Requirements/Notes | <ul style="list-style-type: none"> • Rising butts, cranked butts and spring hinges (single or double action) are not approved under the scope of this Assessment • Additional hinges (up to maximum of 5no per leaf) may be installed if preferred/required for mechanical purposes • Single axis hinges must have been successfully type tested for conformity to all the requirements of BS EN 1935: 2002, including the additional requirements for fire/smoke door use • Single axis hinges must have a Door Mass Grade, as defined in BS EN 1935: 2002, which demonstrates the hinge is capable of supporting a door leaf weight, equal to, or greater than, that proposed. | |

B.2 Mortice Locks/Latches

| Tested and Approved Hardware | |
|---|--|
| <ul style="list-style-type: none"> • Arrone mortise lock/latch – AR8101-R-60-SSS • Laidlaw mortise lock/latch | |

| Alternative Lock/Latch Specification | | |
|--------------------------------------|--|---|
| Element | Specification/Quantity/Dimensions | |
| Latch/Lock Type | Mortice latches, tubular mortice latches, sashlocks and deadlocks | |
| Maximum Forend Dimensions | 235mm high x 24mm wide | |
| Maximum Strike Plate Dimensions | 180mm high x 25mm wide (excluding tongue) | |
| Maximum Body Dimensions | 165mm high x 100mm wide x 16mm thick | |
| Material | Steel based with no essential part of the lock/latch to comprise polymeric or other low melting point (<800°C) materials and should not contain any flammable materials | |
| Position | Centred at 1000mm (± 200mm) above the bottom of the door leaf | |
| Intumescent Protection | Single Doorsets | None required |
| | Double Doorsets | 1mm thick RAM or STS graphite based or MAP (e.g. Interdens) intumescent sheet material under the lock/latch forend and strike plate |
| Additional Requirements/Notes | <ul style="list-style-type: none"> • Where glazed apertures are also incorporated and are positioned such that locks/latches are included in the margin between the aperture and door edge, care must be taken to ensure that the effective door 'stile' is not weakened by the mortice • It is a condition of this assessment that the margin must be at least 50mm wider than the lock/latch mortice. If the mortice lock/latch is fitted in line with a 'rail' between two apertures, no part of the lock mortice shall be closer than 50mm to the edge of any aperture • Over-morticing is to be avoided; mortices shall be as tight as possible to the latch. • If there are gaps around the case (not exceeding 2mm) then these must be made good with intumescent mastic or sheet material. • Holes for spindles or cylinders shall be kept as small as is compatible with the operation of the hardware • Mortice locks/latches must have been successfully type tested for conformity to all the requirements of BS EN 12209: 2016 including the additional requirements for fire/smoke door use • Mortice locks/latches must have achieved the appropriate Grade in respect of suitability of use in fire resisting doors, as defined in BS EN 12209:2016. This constitutes Grade B for latched door configurations and Grade N for unlatched door configurations | |

B.3 Door Closers

Tested and Approved Hardware

- Arrone surface mounted overhead closer – AR1500
- Arrone surface mounted overhead closer – AR450-SE

General Requirements/Notes

Every hinged fire door (both leaves in double doors), including flat entrance doors and doors between a dwelling and an integral garage, must be fitted with a self-closing device, with the exception of the following;

- Fire doors which are normally kept locked shut and labelled with an appropriate sign which complies with BS5499: Part 1: 1990
- Fire doors to cupboards
- Fire doors within flats or dwellings

IFC recommends that the fire strategy for the proposed project is reviewed, as this may detail specific requirements for door closing devices, which takes precedence over the details outlined above.

This report evaluates the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or door closing device, or locked shut, as applicable. If no door closing device is fitted, good management practice must be in place to ensure the doors are fully closed into the frame reveal when not in use.

All door closing devices must be fitted according to the manufacturer's instructions (unless stipulated otherwise herein) and be adjusted so that they are capable of fully closing the door leaf, against any friction imposed by the latch (and smoke seals, if fitted), from any position of opening.

B.3.1 Surface Mounted Door Closers

General Requirements/Notes

- Surface mounted door closers must have been fire tested or assessed by IFC for use on unlatched FD30 timber door leaves hung within timber frames
- If a surface mounted closer is to be fitted within 100mm (in the vertical plane) of apertures containing uninsulated glass, the selected closer type must have been tested on the unexposed face of an uninsulated steel door, or a fully glazed door fitted with uninsulating glass

B.4 Flush Bolts

| Tested and Approved Hardware | |
|---|---|
| <ul style="list-style-type: none"> Zoo Hardware ZAS03RSS | |
| Alternative Flush Bolt Specification | |
| Element | Specification/Quantity/Dimensions |
| Maximum Size | 205mm long x 20mm wide x 19mm deep |
| Material | Steel based with no essential part of the flushbolt to comprise polymeric or other low melting point (<800°C) materials and should not contain any flammable materials |
| Position | <ul style="list-style-type: none"> Positioned at the top and bottom of the vertical meeting edge Must be located on the centre line of the leaf thickness or abutting the centreline of the leaf thickness when installed in doors with rebated overpanel junctions |
| Intumescent Protection | 1mm thick RAM or STS graphite based or MAP (e.g. Interdens) intumescent sheet material lining the mortise for the flush bolt and under the return forend and opposing keep plate |

B.5 Push/Kick Plates

| Element | Specification/Quantity/Dimensions |
|-------------------------------|--|
| Maximum Dimensions | Maximum 0.4m ² per leaf face in any orientation |
| Fixing | <ul style="list-style-type: none"> Mechanically fixed with short screws (maximum 13mm) Glued with a thermally softening adhesive (e.g. contact adhesive) |
| Material | Steel, aluminium or PVC |
| Intumescent Protection | None required |
| Additional Requirements/Notes | <ul style="list-style-type: none"> Must be cut short of door stops and glazing beads but may be located under handle rose/escutcheons Push/kick plates must be surface fixed only. These items must not be recessed into the leaf face without prior consultation with IFC |

B.6 Surface Mounted Pull Handles

| Element | Specification/Quantity/Dimensions |
|-------------------------------|---|
| Max Dimensions | Fixing points must be no greater than 800mm apart |
| Material | Steel or aluminium |
| Intumescent Protection | Bolt-through fixings must be wrapped in 1mm thick graphite based or MAP (e.g. Interdens) intumescent sheet material |
| Additional Requirements/Notes | Pull handles that are fixed through the leaf shall use clearance holes as close fitting as possible to the bolt |

B.7 Panic Hardware

| Element | Specification/Quantity/Dimensions |
|-------------------------------|--|
| Maximum Dimensions | No restrictions |
| Material | Steel or aluminium |
| Position | Surface mounted to the door leaf or frame |
| Intumescent Protection | None required |
| Additional Requirements/Notes | <ul style="list-style-type: none"> • Doors fitted with panic hardware must be treated as unlatched • The installation of panic hardware must not involve the removal of any material from the door leaf or door frame • The installation of panic hardware which includes a battery pack or requires the addition of a cableway through the door or frame is not approved |

APPENDIX C - SUMMARY OF FIRE TEST EVIDENCE

| Test Report information | | Items/Details Supported by Test Evidence |
|-------------------------|--|---|
| Test Report | FIRES-FR-134-20-AUNE | <p><u>Both door assemblies</u></p> <ul style="list-style-type: none"> Frame: 100x30mm veneered MDF(705kg/m³) + 12mm planted MDF(720kg/m³) stop. Dowelled mitre jointed, screwed and glued with D2 adhesive. Architraves: 64x12mm veneered MDF(705kg/m³) located into a 10mm deep x 4mm wide groove in the frame set 21mm back from the frame reveal Leaf: Twin FJ softwood (443kg/m³) stiles and rails, inner 45mm wide, outer 40mm wide x 38mm thick, PVAc glued and stapled together. 38mm flaxboard core(320kg/m³) faced with 3mm HDF (850kg/m³) glued with PVAc. (No lippings). Hinges: 3no. 100x36mm AR 8782 lift-off hinges (150, 970 + 1890 from leaf head) with 5no. wood screws per blade (+1mm 100 x 36mm Pyrosist graphite) Overhead closer: Arrone AR1500 surface mounted overhead closer Lock: Arrone AR8101-R-60-SSS mortise lock 235x24mm forend/165x88x15.6 mm body/approx180x40mm strike (1mm RAM Pyrosist graphite to lock body + forend/strike) positioned 1025 up from threshold 15x4mm RAM Pyrosist 9010 intumescent seal central in frame reveal Smoke/acoustic seal: RAMFLEX perimeter seal against door stop |
| Test Sponsor | RAM Extrusion Ltd | |
| Test Laboratory | FIRES, s.r.o | |
| Test Date | 24 March 2020 | |
| Door Configuration | 2no. LSASD No.1 – Opening In No.2 – Opening Away | |
| Leaf size (mm) | 2040 x 926 x 44 | |
| Test Standard | BS476: Part 22: 1987 | |
| Test result | No.1 = 36 minutes (In) No.2 = 35 minutes (Out) | |

| Test Report information | | Items/Details Supported by Test Evidence |
|-------------------------|--|---|
| Test Report | WF 389658 AR1 | <ul style="list-style-type: none"> Frame (Leaf A): 100x30mm MDF (700kg/m³) + 12mm planted MDFstop. Half lapped joint screwed together. Frame (Leaf B): 100x30mm European redwood (450kg/m³) + 12mm planted stop. Half lapped joint screwed together. Architraves: 44x18mm MDF (700kg/m³) Leaf: FJ softwood (450kg/m³) stiles 40mm wide and twin rails, inner 45mm wide, outer 40mm wide x 35mm thick, stapled together. 35mm H-Flachs flaxboard E1 core (320kg/m³) stapled to perimeter frame with a horizontal joint 600mm up from base, faced with 4mm MDF (700kg/m³) glued with PVA. 8mm sapele (640kg/m³) lippings to vertical edges only glued using PU. Leaf B Variations: (As above) + 21 thick with 24 wide x 12mm rebate sapele (640kg/m³) lipping to bottom of OP and head of leaves. Hinges: Eurospec Enduro 100x30mm butt hinges (Door A – 4no.-150, 450, 1425 + 2400 from leaf head), (Door B - 3no.-250, 450+ 1910 from leaf head) with 4no. 31mm wood screws per blade. Overhead closer: Arrone AR450-SE surface mounted overhead closer Lock: Laidlaw mortise lock 230x20mm forend/180x25mm strike (1mm STS graphite under lock strike) positioned 1055 up from threshold Flush Bolt (Door B): Zoo Hardware ZAS03RSS 205x20mm (disengaged) in passive leaf edge, top and bottom (1mm STS graphite lining mortise) Intumescent(Door A): 15x4mm STS154FO intumescent seal central in frame reveal Intumescent(Door B): 15x4mm STS154FO intumescent seal central in frame reveal. 2no.10x4mm STS104FO/L intumescent seals, centrally fitted, 10mm apart in the active leaf closing edge. 2no.10x4mm STS104FO/L intumescent seals, centrally fitted in each rebate at the leaf/OP interface. Smoke/acoustic seal (Door B): STS1009 perimeter seal against the door stop Glazing(Door A): 7.9mm Pyrobelite 2no.700x400mm apertures. Sapele (640kg/m³) beads (top ap.) -23hx25w incl. 8x8 bolection return +15° chamfer. |
| Test Sponsor | H-Flachs GmbH | |
| Test Laboratory | EXOVA Warringtonfire | |
| Test Date | 3 October 2017 | |
| Door Configuration | Door A - ULSASD Door B – ULSADD+OP | |
| Leaf size (mm) | Door A - 2700 x 930 x 45 Door B – 2200 x 450/925 +605h OP x 45 | |
| Test Standard | BS476: Part 22: 1987 | |
| Test result | Door A = 29 minutes Door B = 30 minutes | |

| Test Report information | | Items/Details Supported by Test Evidence |
|-------------------------|--|---|
| | | <p>(lower ap.) -15hx17w incl. 2x2 quirk, flat top. Pins – 40mm long, 50mm from corners, 126mm centres at 35° to glass.</p> <ul style="list-style-type: none"> • Glazing(Door B): 7.9mm Pyrobelite 1400x500mm aperture. Sapele (640kg/m³) beads -25hx25w incl. 8x8 bolection return +15° chamfer. Pins – 40mm long, 50mm from corners, 126mm centres at 35° to glass. |

| Test Report information | | Items/Details Supported by Test Evidence |
|-------------------------|--|---|
| Test Report | WF 389660 AR1 | <ul style="list-style-type: none"> • Frame : 100x32mm sapele (640kg/m³) + 15mm planted stop. Half lapped joint screwed together. Astragal fitted over the rebated head/OP junction in door A. • Architraves: 44x18mm MDF (700kg/m³) • Leaf: FJ softwood (450kg/m³) stiles 40mm wide and twin rails, inner 45mm wide, outer 40mm wide x 35mm thick, stapled together. 35mm H-Flachs flaxboard E0 core (320kg/m³) stapled to perimeter frame. Door B with a horizontal joint 600mm up from base, faced with 4mm MDF (700kg/m³) glued with PVA. 8mm sapele (640kg/m³) lippings to vertical edges only glued using PU. • Door A Variations: (As above) + 21 thick with 24 wide x 12mm rebate sapele (640kg/m³) lipping to bottom of OP and head of leaves. 2no. vertical and 2no. horizontal 10x8mm sapele inlays in the half leaf with 5x5 grooves. ~100mm from vert leaf edges and ~250mm from horiz edges. 1 of each groove with a 2x5mm steel inlay glued with ?. • Door B Variations: Horizontal butt joint in core 600mm up from bottom, stapled together. 10wx12d wireway in core face up to 2100mm from leaf base lined with 10x2mm STS graphite. • Hinges: Eurospec Enduro 102x31mm butt hinges (Door A – 3no. -150, 450+ 1910 from leaf head), (Door B - 4no. -150, 450, 1425 + 2400 from leaf head) with 4no. 31mm wood screws per blade. • Overhead closer: Arrone AR450-SE surface mounted overhead closer • Lock: Laidlaw mortise lock 233x21mm forend/165x25mm strike (Door A only - 1mm STS graphite under lock forend/strike) positioned 1400-1500 up from threshold • Intumescent(Door A): 15x4mm Odice Flexilodice intumescent seal central in frame reveal. 2no.10x4mm Odice Flexilodice intumescent seals, centrally fitted, 10mm apart in the active leaf closing edge. 2no.10x4mm Odice Flexilodice intumescent seals, centrally fitted in each rebate at the leaf/OP interface. • Intumescent(Door B): 15x4mm Odice Flexilodice intumescent seal central in frame reveal • Glazing(Door A): 7.9mm Pyrobelite 2no.1435x285mm apertures. Sapele (640kg/m³) beads -(LH ap.)15.3hx19w flat. clad in 2mm pvc(recessed in leaf face) -(RH ap.)15hx17w flat with 6mm acrylic rebated into face +2mm pvc rebated into acrylic/leaf face. Pins – 40mm long, 50mm from corners, 150mm centres at 35-40° to glass. 10x4mm Therm-A-Glaze 45. • Glazing(Door B): Top Ap. 7mm Fireglass UK Firesafe glass 700hx300w mm ap. Chamfered 15° flush 15.3hx17w sapele beads with 2x2 quirk. Lower Ap. 7.9mm Pyrobelite 700x500mm ap. Sqr/flush 15.3hx17w sapele beads with 2x2 quirk. Pins – 40mm long, 50mm from corners, 150mm centres at 35-40° to glass. Sealmaster 15 x 5mm foam glazing tape. |
| Test Sponsor | H-Flachs GmbH | |
| Test Laboratory | EXOVA Warringtonfire | |
| Test Date | 19 October 2017 | |
| Door Configuration | Door A - ULSADD+OP Door B – ULSASD | |
| Leaf size (mm) | Door A - 2200 x 450/926 +600h OP x 45 Door B – 2700 x 926 x 45 | |
| Test Standard | BS476: Part 22: 1987 | |
| Test result | Door A = 29 minutes Door B = 30 minutes | |