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Title

Supplementary Scope of Application Assessment for:

Norseal, Vision Glazing Systems for:

Fire Resisting Timber Doorset Assembilies

30 and 60 Minutes Fire Resistance

Report No.:

Chilt/A12161 Revision B

Issue Date:

22nd July 2021

Valid Until:

22nd July 2026

Job Reference:

WF505050

Prepared for:

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The version/revision stated on the front of this Scope of Application Assessment supersedes all previous versions/revisions, if applicable, and must be used to manufacture the assessed systems from the stated validity date on this front cover. Previous revisions of the Scope of Application Assessment cannot be used once an updated Scope of Application Assessment has been issued under a new revision.

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1 Foreword

This supplementary Scope of Application Assessment report has been commissioned by Norseal Limited and relates to the fire resistance of 30 and 60 minute fire resisting glazing systems when installed within timber based doorset assemblies that have been successfully fire tested with glazed apertures included..

The report is for National Application and has been written in accordance with the general principles outlined in BS EN 15725: 2010; *Extended application reports on the fire performance of construction products and building elements*.

This Scope of Application Assessment (scope) uses established empirical methods of extrapolation and experience of fire testing similar doorsets, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance performance, if the variations specified herein were to be tested in accordance with BS 476-22: 1987.

This Scope of Application Assessment has been written using appropriate test evidence generated at UKAS accredited laboratories, to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturers stated vision glazing system designs and is summarised in section 3.

The scope presented in this report relates to the behaviour of the proposed door design variations under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the door assembly in use.

This Scope of Application Assessment has been prepared and checked by product assessors with the necessary competence, who subscribe to 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’. The aim of the PFPF guidelines is to give confidence to end-users that assessments that exist in the UK are of a satisfactory standard to be used for building control and other purposes.

Valid field of application supporting documentation has been used to increase the scope of application of this report. It is the responsibility of users to check that the cited versions of such supporting documentation remain valid at the time of use. Where new revisions or revalidations of supporting documentation have been issued they must be checked against those referenced in this report and, if their scope has changed, Warringtonfire must be consulted to review and consider the effect of these changes on the scope and conclusions of this report.

2 Proposal

It is proposed to consider the fire resistance performance of the specified proprietary Norseal Limited, Vision glazing systems within timber doorset assemblies, for 30 and 60 minutes fire resistance integrity performance, if the doorset designs were to be tested to the requirements of BS 476-22: 1987, *Methods for determination of the fire resistance of non-loadbearing elements of construction.*

In order to construct a doorset design using the Norseal Vision glazing systems listed herein, this supplementary Scope of Application has to be used in conjunction with one of the manufacturers current and valid assessments listed in section 6, as appropriate. This scope of application cannot be used to support the fire resistance of a doorset design by itself.

This supplementary scope of application only provides information relevant to the Norseal Vision glazing systems and how they can be used as an option to similar systems currently listed within the proprietary manufacturers' main assessment for the doorset design. All other construction details and design limitations must be in compliance with the main assessment for the doorset design, as appropriate.

Future revisions to the main assessment for the specified doorset design may introduce new restrictions or manufacturing requirements. This supplementary scope of application will remain suitable for use in combination with the main assessment for the specified doorset provided that the doorset design continues to be approved for use with the items that are considered herein (i.e. fire resistant glazing systems). Any future revisions of the main assessment for the doorset design must be referred to for updated restrictions on fire resistant glazing systems, which must take precedence over those herein.

The scope of application defined in this report is based on the fire resistance test evidence for the doorset design, which is summarised in section 3. Analysis of specific construction details that require assessment are given within this report against the relevant element of construction, as appropriate.

3 Test Data

The test evidence summarised below has been generated to support the fire resistance performance of the Vision glazing systems that are the subject of this field of application. The summary details are considered to be the key aspects of the design tested.

Note:

1. Dimensions are in mm unless otherwise stated.

The test evidence has been generated across a number of different glazing configurations, which have been tested to the principles of BS 476-22: 1987. It has been deemed acceptable to consider the following test evidence within previously tested and assessed timber based doorset designs as the testing undertaken demonstrates the likely performance of the specifically tested element under test conditions.

All of the test evidence used in the evaluation is over 5 years old. In accordance with industry guidance, the evidence has been reviewed to consider its suitability. Warringtonfire are satisfied that there have been no significant revisions to the relevant test standards which would render the evidence irrelevant.

The manufacturer and sponsor of the test evidencehas since rebranded the products listed in the test evidence in section 3. Therefore, the summarised tests contained within this section are detailed as reported, however, the subsequent scope of application has been updated to take account of the rebranding exercise.

The assessment is provided for the rebranded products based on the product name changes as advised by the client and on the basis that the products are otherwise identical to those originally tested. The products in the test reports cannot be rebranded without further testing according to EA (European Accrediation) resolution 2014 (33) 31, which does not allow the re-issuing of reports under accreditation where the trade name/trade mark of the product has changed.

3.1 Primary Test Evidence

3.1.1 Test Report IF12006

Date of Test:	31/01/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Section of Graduated Density Chipboard (GDC) door core including a single glazed aperture
Summary of Test Specimens:	**Overall Sample Size:** 1090 mm wide by 1090 mm high x 54 mm thick **Leaf Detail:** Graduated Density Chipboard, Density 630kg/m^3 **Mounting Detail:** The door leaf section was fixed to the refractory lined restraint frame with 1No. 50mm long wood screw at each corner of the leaf. **Glazing** **Aperture Size:** 891 mm high x 886mm wide **Sight Size:** 855 mm high x 850 mm wide **Expansion Allowance:** 2-3 mm all around **Bead Detail:** Sapele, 18 mm high x 21 mm deep with a 6° chamfer and 2 mm rebate to accept glazing liner. **Fixing Detail (Bead):** Steel pins, 50 mm long, fitted 50 mm from corners, 150 mm centres at 30° to the face of the glass. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing Liner:** Norsound Liner, 44 mm wide x 2 mm thick, applied lining the aperture **Glazing System:** Norsound Vision 60 Slimline, 15 mm wide x 2 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 64 minutes

3.1.2 Test Report IF12011 Revision A

Date of Test:	28/02/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Section of Graduated Density Chipboard (GDC) door core, hung within a European Redwood frame, including a single glazed aperture. The door leaf was hung to open towards the heating conditions of the test.
Summary of Test Specimens:	**Overall Sample Size:** 1090 mm wide by 1090 mm high **Frame Detail:** European Redwood, Density 510kg/m^3, 70 mm deep x 32 mm wide, with a 12 mm deep x 20mm wide planted European Redwood Stop **Intumescent Detail:** Pyroplex 87002 Rigid Box Seal, 15 mm wide x 4 mm thick, fitted central to the frame reveal. **Leaf Detail:** Graduated Density Chipboard, 44 mm thick **Lipping Detail:** Sapele, applied to the vertical edges and top edge only, 10 mm thick, Density 640kg/m^3 **Hardware:** 2No. Norsound H433, Steel Fixed Pin Butt Type Hinges, 100 mm high x 32 mm wide (Blade Size) **Mounting Detail:** The frame was fixed to the refractory lined restraint frame **Glazing** **Aperture Size:** 820 mm high x 820mm wide **Sight Size:** 791 mm high x 791 mm wide **Expansion Allowance:** 3 mm all around **Bead Detail:** European Redwood, 15 mm wide x 14.5 mm high. **Fixing Detail (Bead):** Steel pins, 40 mm long x 1.5 mm thick, fitted 50 mm from corners, 150 mm centres. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing System:** Norsound Ltd, Norglaze 30, 15 mm wide x 2 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 39 minutes

3.1.3 Test Report IF12027

Date of Test:	24/04/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Section of Graduated Density Chipboard (GDC) door core, hung within a Sapele frame, including a single glazed aperture. The door leaf was hung to open towards the heating conditions of the test.
Summary of Test Specimens:	**Overall Leaf Size:** 1052 mm high x 1020 mm wide x 54 mm thick **Frame Detail:** Sapele, Density 640kg/m^3, 70 mm deep x 32 mm wide, with a 12 mm deep x 12mm wide planted Sapele Stop **Intumescent Detail:** 2No. Pyroplex 8700 Rigid Box Seal's, 15 mm wide x 4 mm thick, fitted central to the frame reveal 10 mm apart. **Weather Seal Detail:** Norsound NOR710 10.2 mm x 11 mm, fitted to the upstand of the stop. **Leaf Detail:** Graduated Density Chipboard, 54 mm thick **Lipping Detail:** Oak, applied to the vertical edges, Density 640kg/m^3 **Hardware:** 2No. EuroSpec, Stainless Steel Butt Type Hinges, 100 mm high x 32 mm wide (Blade Size) complete with 0.5mm thick Norsound hinge protection under each blade. **Mounting Detail:** The frame was fixed to the refractory lined restraint frame **Glazing** **Glass Size:** 814 mm high x 814 mm wide **Sight Size:** 768 mm high x 768 mm wide **Expansion Allowance:** 3 mm all around **Bead Detail:** Sapele, Density 640kg/m^3, 20 mm wide x 26 mm high including a 15 mm wide x 1.5 mm deep rebate and a 15° chamfer. **Fixing Detail (Bead):** Steel pins, 50 mm long, fitted 50 mm from corners, 230-250 mm centres at 45° to the face of the glass. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing Liner:** Norsound Ltd, Norsound Liner, 44 mm wide x 2 mm thick **Glazing System:** Norsound Ltd, Vision 60, 25 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 68 minutes

3.1.4 Test Report IF12050

Date of Test:	24/10/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Glazed screen formed softwood framing utilising Norsound Vision 30 glazing system.
Summary of Test Specimens:	**Overall Sample Size:** 1300 mm wide by 1300 mm high x 70 mm thick **Frame Detail:** Softwood Timber, Complying to BS EN 942 Class J30, Density 540kg/m^3, 32 mm wide x 70 mm deep. **Mounting Detail:** The frame was fixed within a plasterboard clad, timber stud supporting construction. **Glazing** **Aperture Size:** 1236 mm high x 1236mm wide **Sight Size:** 1206 mm high x 1206 mm wide **Expansion Allowance:** 3 mm all around, achieved by 3 mm thick hardwood setting blocks **Bead Detail:** European Redwood, Density 540kg/m^3, 14.5 mm high x 14 mm deep with a 2 mm x 2 mm rebate to the lower outer edge. **Fixing Detail (Bead):** Steel pins, Ø1.5 mm x 40 mm long, fitted 50 mm from corners, 150 mm centres. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing System:** Norsound Ltd, Vision 30, 15 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 32 minutes

3.1.5 Test Report IF12051

Date of Test:	24/10/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Glazed screen formed softwood framing utilising Norsound Norglaze 60 glazing system.
Summary of Test Specimens:	**Overall Sample Size:** 1300 mm wide by 1300 mm high x 70 mm thick **Frame Detail:** Sapele, Complying to BS EN 942 Class J30, Density 640kg/m^3, 32 mm wide x 70 mm deep. **Mounting Detail:** The frame was fixed within a plasterboard clad, timber stud supporting construction. **Glazing** **Aperture Size:** 1236 mm high x 1236mm wide **Sight Size:** 1184 mm high x 1184 mm wide **Expansion Allowance:** 3 mm all around, achieved by 3 mm thick hardwood setting blocks **Bead Detail:** Sapele, Density 640kg/m^3, 26 mm high x 18.5 mm deep with a 20° chamfer and 1.5 mm rebate to accept the liner. **Fixing Detail (Bead):** Steel pins, Ø2 mm x 50 mm long, fitted 50 mm from corners, 150 mm centres. **Glass Type:** Pilkington Pyrodur EW60-10, 10 mm thick. **Glazing Liner:** Norsound Ltd, Norglaze 60 Liner, 42 mm wide x 2 mm thick, fitted lining the aperture. **Glazing System:** Norsound Ltd, Norglaze 60, 25 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 79 minutes

3.1.6 Test Report IF12052

Date of Test:	25/10/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Glazed screen formed softwood framing utilising Norsound Vision 30 glazing system. 4No. glazed apertures, formed with shared transom and mullion arrangement
Summary of Test Specimens:	**Overall Sample Size:** 1300 mm wide by 1300 mm high x 70 mm thick **Frame Detail:** Softwood Timber, Complying to BS EN 942 Class J30, Density 540kg/m^3, 32 mm wide x 70 mm deep. **Mounting Detail:** The frame was fixed within a plasterboard clad, timber stud supporting construction. **Glazing** **Aperture A** **Aperture Size:** 484 mm high x 821mm wide **Sight Size:** 455 mm high x 792 mm wide **Aperture B** **Aperture Size:** 484 mm high x 383mm wide **Sight Size:** 455 mm high x 354 mm wide **Aperture C** **Aperture Size:** 720 mm high x 821mm wide **Sight Size:** 691 mm high x 792 mm wide **Aperture D** **Aperture Size:** 720 mm high x 383mm wide **Sight Size:** 691 mm high x 354 mm wide **Expansion Allowance:** 3 mm all around, achieved by 3 mm thick hardwood setting blocks **Bead Detail:** Softwood, Density 540kg/m^3, 14.5 mm high x 14 mm deep with a 2 mm x 2 mm rebate to the lower outer edge. **Fixing Detail (Bead):** Steel pins, Ø1.5 mm x 40 mm long, fitted 50 mm from corners, 150 mm centres. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing System:** Norsound Ltd, Vision 30, 15 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 28 minutes

3.1.7 Test Report IF12053

Date of Test:	25/10/2012
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Glazed screen formed Sapele framing utilising Norsound Vision 60 glazing system. 4No. glazed apertures, formed with shared transom and mullion arrangement
Summary of Test Specimens:	**Overall Sample Size:** 1300 mm wide by 1300 mm high x 70 mm thick **Frame Detail:** Sapele, Complying to BS EN 942 Class J30, Density 640kg/m^3, 32 mm wide x 70 mm deep. **Mounting Detail:** The frame was fixed within a plasterboard clad, timber stud supporting construction. **Glazing** **Aperture A** **Aperture Size:** 484 mm high x 383mm wide **Sight Size:** 434 mm high x 331 mm wide **Aperture B** **Aperture Size:** 484 mm high x 821mm wide **Sight Size:** 434 mm high x 769 mm wide **Aperture C** **Aperture Size:** 720 mm high x 383mm wide **Sight Size:** 668 mm high x 331 mm wide **Aperture D** **Aperture Size:** 720 mm high x 821mm wide **Sight Size:** 668 mm high x 769 mm wide **Expansion Allowance:** 3 mm all around, achieved by 3 mm thick hardwood setting blocks **Bead Detail:** Sapele, Density 640kg/m^3, 26 mm high x 20 mm deep with a 20° chamfer and a 1.5 mm rebate to accept the liner. **Fixing Detail (Bead):** Steel pins, Ø2 mm x 50 mm long, fitted 50 mm from corners, 150 mm centres. **Glass Type:** Pilkington Pyrodur EW60-10, 10 mm thick. **Glazing Liner:** Norsound Ltd, Liner, 42 mm wide x 2 mm thick, applied lining the aperture. **Glazing System:** Norsound Ltd, Vision 60, 25 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 75 minutes

3.1.8 Test Report IF13012

Date of Test:	05/03/2013
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Glazed screen formed softwood framing utilising Norsound Vision 30 glazing system. 4No. glazed apertures, formed with shared transom and mullion arrangement
Summary of Test Specimens:	**Overall Sample Size:** 1300 mm wide by 1300 mm high x 70 mm thick **Frame Detail:** Softwood Timber, Complying to BS EN 942 Class J30, Density 540kg/m^3, 32 mm wide x 70 mm deep. Mortice and Tennon Jointed. **Mounting Detail:** The frame was fixed within a plasterboard clad, timber stud supporting construction. **Glazing** **Aperture A** **Glass Size:** 478 mm high x 377mm wide **Sight Size:** 455 mm high x 354 mm wide **Aperture B** **Glass Size:** 478 mm high x 815mm wide **Sight Size:** 455 mm high x 792 mm wide **Aperture C** **Glass Size:** 714 mm high x 377mm wide **Sight Size:** 691 mm high x 354 mm wide **Aperture D** **Glass Size:** 714 mm high x 815mm wide **Sight Size:** 691 mm high x 792 mm wide **Expansion Allowance:** 3 mm all around, achieved by 3 mm thick hardwood setting blocks **Bead Detail:** Softwood, Density 540kg/m^3, 14.5 mm high x 15 mm deep **Fixing Detail (Bead):** Steel pins, Ø1.5 mm x 40 mm long, fitted 50 mm from corners, 200 mm maximum centres. **Glass Type:** Pilkington Pyroshield 2, 7 mm thick. **Glazing System:** Norsound Ltd, Vision 30T Intumescent Glazing System, 15 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 45 minutes

3.1.9 Test Report IF13061

Date of Test:	06/06/2013
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Section of GDC door core, hung within a Sapele frame, including a single glazed aperture. The door leaf was hung to open towards the heating conditions of the test.
Summary of Test Specimens:	**Overall Leaf Size:** 900 mm wide by 1052 mm high **Frame Detail:** Sapele, Density 640kg/m^3, 94 mm deep x 32 mm wide, with a 12 mm deep x 20mm wide planted Sapele Stop **Intumescent Detail:** 2No. Pyroplex Rigid Box Seal, 20 mm wide x 4 mm thick, fitted 10 mm apart, 7 mm from the exposed face. Norsound 5202LNR, 52 mm wide x 2 mm thick applied to the bottom edge of the leaf. **Leaf Detail:** Graduated Density Chipboard, Density 630-635kg/m^3, 64 mm thick **Lipping Detail:** Sapele, applied to all edges, 6-8 mm thick, Density 640kg/m^3 **Hardware:** 2No. Royde and Tucker H101 Lift Off Type Hinges, 100 mm high x 35 mm wide (Blade Size), complete with Norsound Hinge Gasket Nor 910, 100 mm high x 30 mm wide x 1 mm thick. **Mounting Detail:** The frame was fixed to the refractory lined restraint frame **Glazing** **Aperture Size:** 752 mm high x 700mm wide **Glass Size:** 710 mm high x 690 mm wide **Expansion Allowance:** 5 mm all around, with 3 mm x 10 mm plywood setting blocks. **Bead Detail:** Sapele, Density 640kg/m^3, 25.5 mm wide x 14.5 mm high with a 1.5 mm high x 6 mm wide bolection return. **Bead Cladding:** Profiled Aluminium, 29.5 mm wide x 24 mm high x 1.2 mm thick **Fixing Detail (Bead):** Steel pins, 50 mm long x 2 mm thick, fitted 40 mm from corners, 150 mm centres 45° to the face of the glass. **Fixing Detail (Bead Cladding):** Steel Screws, No.4 x 20 mm long, Fitted parallel to the face of the glass. **Glass Type:** C3S Securiglass Ltd, Pyrosec, 7 mm thick. **Glazing Liner:** Norsound Ltd, Vision 5202LNR, 52 mm wide x 2 mm thick, applied lining the aperture. **Glazing System:** Norsound Ltd, Norglaze 30, 15 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 96 minutes

3.1.10 Test Report IF13077

Date of Test:	07/08/2013
Identification of Test Body:	Chiltern International Fire, Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND. Laboratory UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Section of GDC door core, hung within a Sapele frame, including a single glazed aperture. The door leaf was hung to open towards the heating conditions of the test.
Summary of Test Specimens:	**Overall Leaf Size:** 1022 mm wide by 1054 mm high **Frame Detail:** Sapele, Density 640kg/m^3, 70 mm deep x 32 mm wide, with a 12 mm deep x 12 mm wide planted Sapele Stop **Intumescent Detail:** 2No. Pyroplex Rigid Box Seal, FO8700, 15 mm wide x 4 mm thick, fitted 10 mm apart, 7 mm from the exposed face. **Leaf Detail:** Graduated Density Chipboard, Density 630kg/m^3±10% , 54 mm thick **Lipping Detail:** Sapele, applied to all edges, 6-8 mm thick, Density 640kg/m^3 **Hardware:** 2No. Royde and Tucker H101 Lift Off Type Hinges, 100 mm high x 35 mm wide (Blade Size), complete with Norsound Hinge Gasket Nor 905, 0.5 mm thick. **Mounting Detail:** The frame was fixed to the refractory lined restraint frame **Glazing** **Sight Size:** 752 mm high x 720mm wide **Glass Size:** 742 mm high x 710 mm wide **Expansion Allowance:** 3 mm all around, with 3 mm hardwood setting blocks. **Bead Detail:** Hardwood, Density 640kg/m^3, 21 mm wide x 14.5 mm high with a 1.5 mm high x 16 mm wide rebate to the inside edge. **Bead Cladding:** NORSOUND UNIVERSAL COVER PLATE, 1.2 mm thick **Fixing Detail (Bead):** Steel pins, 50 mm long x 2 mm thick, fitted 40 mm from corners, 150 mm centres. **Fixing Detail (Bead Cladding):** Steel Screws, 16 mm long. **Glass Type:** Schott Pyran S, 7 mm thick. **Glazing Liner:** Norsound Ltd, Universal LNR4202 Glazing Liner, 42 mm wide x 2 mm thick, applied lining the aperture. **Glazing System:** Norsound Ltd, Universal FD30B Glazing Strip, 15 mm wide x 3 mm thick, fitted between the glass and the bead on both faces.
Test Standard:	Test to the temperature and pressure conditions of BS 476-22: 1987.
Performance:	**Integrity:** 64 minutes

3.2 Supporting Test Evidence

The following table lists the the compatible doorset designs and associated Field of Applications suitable for use in conjunction with the glazing systems detailed in this Scope of Application Assessment.

All of the door designs listed below have been tested with glazed apertures and the tested glazing systems listed in section 3 have been assessed as being a suitable alternative, providing the requirements of this assessment are followed.

It is therefore critical that this report is read and used in conjunction with one of the following Field of Application Reports for the doorset design being manufactured, as appropriate.

The dimensions of a particular glass size detailed in this Scope of Application Assessment take precedence over those stated in the associated field of application for the doorset design being manufactured, unless the stated dimensions for the glass type in the associated Field of Application for the doorset designs are smaller. The maximum glass size permitted within the associated Field of Application may therefore further restrict the size of glazing permitted by this Scope of Application Assessment.

The below referenced Field of Applications are also subject to a 5 year validity period, it is therefore essential that the Field of Application relevant to the chosen doorset design is also reviewed for its validity by the user.

Report No	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
Chilt/A02066 Revision N – Falcon Panel Products: Strebord 44	Various	Various	BS 476: Part 22: 1987	30
Chilt/A02067 Revision J – Falcon Panel Products: Strebord 54	Various	Various	BS 476: Part 22: 1987	60
FEA/F97174 Revision I – Halspan: 30 Prima	Various	Various	BS 476: Part 22: 1987	30
Chilt/A01204 Revision G – Halspan: 30 Optima	Various	Various	BS 476: Part 22: 1987	30
Chilt/A13242 Revision F – Halspan XT30 and IT30	Various	Various	BS 476: Part 22: 1987	30
FEA/F96103 Revision N – Halspan: 60 Prima	Various	Various	BS 476: Part 22: 1987	60
Chilt/A01205 Revision H – Halspan : 60 Optima	Various	Various	BS 476: Part 22: 1987	60

Report No	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
Chilt/A13227 Revision E – Halspan XT60 and IT60	Various	Various	BS 476: Part 22: 1987	60
FEA/F98164 Revision N – Pacific Rim Wood: Flamebreak 30	Various	Various	BS 476: Part 22: 1987	30
Chilt/A02141 Revision J – Pacific Rim Wood: Flamebreak 60	Various	Various	BS 476: Part 22: 1987	60
Chilt/A12151 - Revision D Blankfort Inc: Blankfort 30 & 30+	Various	Various	BS 476: Part 22: 1987	30
Chilt/A12152 – Revision E Blankfort Inc: Blankfort 60 & 60+	Various	Various	BS 476: Part 22: 1987	60
Chilt/A13085 Revision E - Egger (UK): FD30 & FD30 Decor	Various	Various	BS 476: Part 22: 1987	30
Chilt/A10187 Revision D - Egger (UK): Eurospan 60	Various	Various	BS 476: Part 22: 1987	60
Chilt/A13058 Revision D - Moralt AG: FireSafe & FireSmoke 44/54mm	Various	Various	BS 476: Part 22: 1987	30
Chilt/A13059 Revision D – Moralt AG: Laminesse FireSafe & FireSmoke 54mm	Various	Various	BS 476: Part 22: 1987	60

4 Technical Specification

4.1 General

The technical specification for the proposed Vision glazing system assemblies is given in the following sections and is based on the test evidence, summarised in section 3.

This document constitutes a scope of application report relating to the following Norseal Ltd glazing systems for 30 and 60 minute fire resisting doorsets:

1. Norseal Vision 30B & 30T
2. Norseal Vision 60B & 60T
3. Norseal Vision 60B Slimline
4. Norseal Universal

Note: Unless otherwise explicitly stated, any reference to Norseal Vision 30B or 60B applies equally to Norseal Vision 30T or 60T as appropriate.

The report will summarise the scope of application of the above Norseal Vision glazing systems when used to glaze timber based fire resisting doorset assemblies and will be based on the associated test and assessment data.

4.2 Intended Use

The intended use of the doorset assemblies the glazing systems under evaluation are intended to be installed within is summarised below:

A pedestrian doorset including any frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) form the assembly.

4.3 Doorset Configurations & Maximum Leaf Sizes

4.3.1 General

Based on the testing conducted on the Norseal Vision glazing systems, this supplementary field of application report imposes no additional restrictions on leaf sizes or configurations over and above those permitted in the main assessment for the specified doorset.

4.3.2 Orientation

All of the testing for Norseal Vision glazing systems has been conducted on doors opening towards the furnace, however, the glazing systems are symmetrical and can therefore be considered for use from either direction with respect to fire risk. Opening towards the furnace is considered the most onerous orientation in terms of fire resistance performance for timber based doorsets due to the door not being restrained in contact with the stop. Since a glass pane is less likely to distort without shattering this is also likely to be most onerous orientation for glazing in terms of potential influence on the sealing ability of the glazing system.

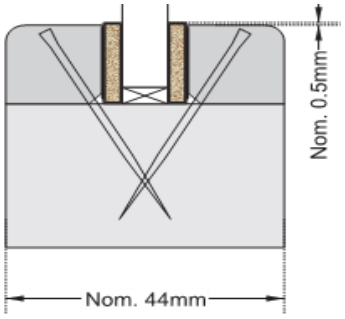
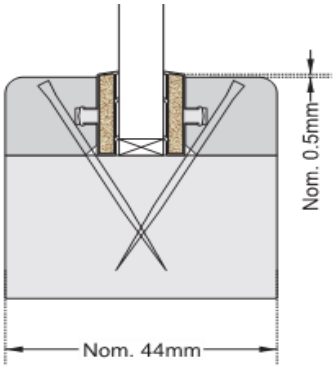
This supplementary scope of application therefore supports the use of the Norseal Vision components in both directions with respect to fire risk, any limitations on direction of opening and fire risk will be dictated by the main assessment for the door design.

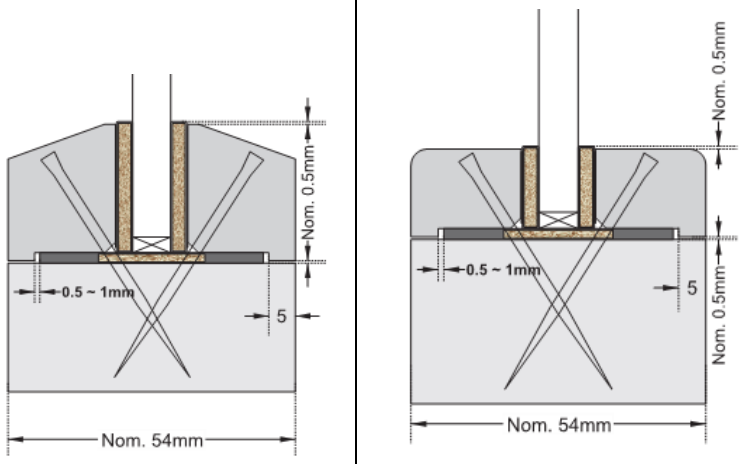
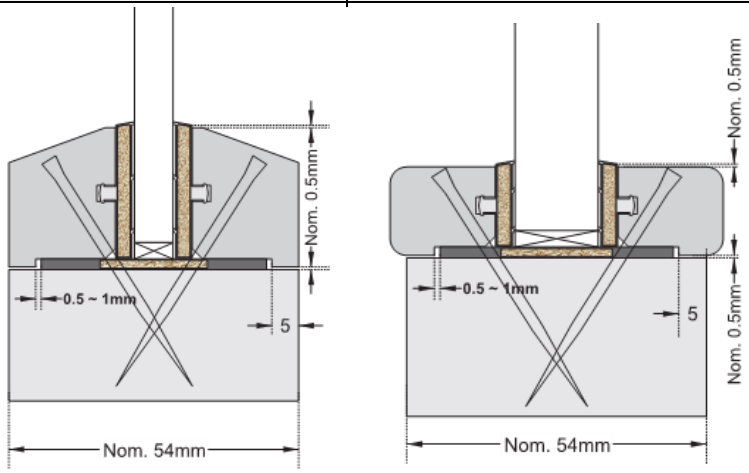
5 General Description of Construction

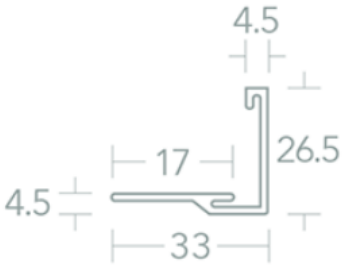
5.1 Construction of Norseal Glazing Systems

The essential elements of the Norseal glazing systems referenced within this assessment comprise of intumescent materials contained within a PVC casing, which is fixed into position between the faces of the glass and the retaining beads – either with adhesive tape or in the case of the Norseal Vision 30T by means of a co-moulded plug (which does not contain intumescent material) which locates into a groove machined in the face of the bead as illustrated.

Unless stated otherwise the dimensions detailed below are in “mm”.

System Name		Norseal Vision 30B	Norseal Vision 30T
Typical Installation			
Dimensions	Bead Height	Nominally 14.5	Nominally 14.5
	Intumescent Seal(s)	15 high x 3 thick	15 high x 3 thick plus ‘plug’
Aperture Liner		Not required	

System Name		Norseal Vision 60B	Norseal Vision 60B Slimline
Typical Installation			
Dimensions	Bead Height	Nominally 24.5	Nominally 14.5
	Intumescent Seal(s)	25 high x 3 thick	15 high x 3 thick
Aperture Liner		Nominally – 2mm thick x minimum 42mm wide	
System Name		Norseal Vision 60T	Norseal Vision 60T Slimline
Typical Installation			
Dimensions	Bead Height	Nominally 24.5	Nominally 14.5
	Intumescent Seal(s)	25 high x 3 thick plus ‘plug’	15 high x 3 thick plus ‘plug’
Aperture Liner		Nominally – 2mm thick x minimum 42mm wide	

System Name		**Norseal Universal**
Typical Installation		 
Dimensions	**Bead Height**	Nominally 14.5
	Intumescent Seal(s)	15 high x 3 thick
Aperture Liner		Nominally – 2mm thick x minimum 42mm wide
Bead Cladding		Norseal Universal Cover Plate, 1.2 thick
Bead Cladding Fixings		16mm long steel wood screws, applied into the timber bead

6 Scope of Application for Norseal Glazing Systems – Door Leaves

See Section 8 for details of fanlights and side screens.

6.1 Proprietary Fire Resisting Timber Based Doors

It has been proposed to consider the Norseal glazing systems with the following, proprietary, fire resisting doorset designs. This report will only consider the maximum aperture size relevant to the specified doorset design and the required bead profiles and fixing details, for each Norseal Vision glazing system. For all other details the full construction requirements in the relevant manufacturers' Warringtonfire supporting documentation and current and valid assessment (see table below) must be referred to including e.g. spacing between apertures (including cut outs for hardware), number of permitted apertures and proximity to leaf edge.

Each of the doorset designs listed below has been successfully tested with a glazed aperture(s) included within the door leaf. On this basis the various doorset designs have been considered as suitable for manufacture with glazed apertures incorporating various glass types which themselves have been successfully tested in a variety of timber based doorset designs. In combination with the testing cited in section 3 of this report we consider it acceptable to permit the use of the Norseal Vision glazing systems within the various timber based doorset designs below as an option to the systems currently cited within the supporting documentation for the specified doorset.

The evaluation of the permitted glazed aperture size for each door leaf type and glazing system is based on the tests listed in section **Error! Reference source not found.** and the results of testing, cited within the supporting documentation for the specified doorset which included glazed elements, and takes into account:

- the margin of over performance above 30 or 60 minutes integrity, as applicable, for each leaf design
- the characteristics exhibited during test
- the glazed aperture dimensions tested.

Manufacturer	Product	Field of Application Reference	Integrity Rating	General Description
Falcon Panel Products Ltd	Strebord 44	Chilt/A02066 Revision N	30	Graduated density particle board
	Strebord 54	Chilt/A02067 Revision J	60	
Halspan Ltd	30 Prima	FEA/F97174 Revision I	30	Tri layer particle board
	60 Prima	FEA/F96103 Revision N	60	
	30 Optima	Chilt/A01204 Revision G	30	Tri layer particle board
	60 Optima	Chilt/A01205 Revision H	60	
	XT30 & IT30	Chilt/A13242 Revision F	30	Tri- layer lamella core with MDF or plywood facings
	XT60 & IT60	Chilt/A13227 Revision E	60	
Pacific Rim Wood	Flamebreak 30	FEA/F98164 Revision N	30	Lamella core door with various facing coverings
	Flamebreak 60	Chilt/A02141 Revision J	60	
Blankfort	Blankfort 30	Chilt/A12151 - Revision D	30	Lamella core door with various facing options
	Blankfort 60	Chilt/A12152 – Revision E	60	
Egger (UK) Ltd	Eurospan	Chilt/A13085 Revision E	30	Graduated density chipboard
	Eurospan	Chilt/A10187 Revision D	60	
Moralt AG	Laminesse	Chilt/A13058 Revision D	30	Lamella core door with various facing options
	Laminesse	Chilt/A13059 Revision D	60	

All of the above designs have been tested and proven to BS 476: Part 22: 1987 and/or BS EN 1634-1. The Field of Application documentation relevant to each door type is referenced above and must be read in addition to this Scope of Application Assessment.

6.2 Assessed Glass – General

Glazed openings must not be less than the prescribed distance from any door edge as outlined within the associated Field of Application for the chosen door design. Multiple apertures are acceptable within the permitted glazed area, subject to specific restrictions for the door type (i.e. minimum dimension between apertures, stiles, rails, internal frame-work etc.). Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape, but no angle must be less than 60 degrees.

The full installation requirements in the assessment documentation relevant to the chosen doorset must be complied with.

6.2.1 Assessed Glass – 30 Minute Applications

Based on the cited test evidence as summarised within Section 3, the following glass types can be considered for use with the Norseal glazing systems, subject to the provisos above.

The maximum glass thickness assessed is 16mm.

Glass Type	Manufacturer	Glass Thickness
1. Pyroshield 2	Pilkington Group Ltd.	6 & 7
2. Pyran S	Schott Glass Ltd.	6
3. Pyrostem	Pyroguard (UK) Ltd.	6
4. Pyroguard EW 30	Pyroguard (UK) Ltd.	7
5. Pyranova S3.07	Schott UK Ltd.	7
6. Pyrobelite 7	AGC Flat Glass UK	7
7. Pyrodur 30-104	Pilkington Group Ltd.	7
8. Pyrodur 60-10	Pilkington Group Ltd.	10
9. Pyroguard EW MAXI	Pyroguard (UK) Ltd.	11
10. Pyranova 15-S2.0	Schott UK Ltd.	11
11. Pyrobelite 12	AGC Flat Glass UK	12
12. Pyrodur 60-20	Pilkington Group Ltd.	13
13. Pyroguard EI30	Pyroguard (UK) Ltd.	15
14. Pyrostop 30-10	Pilkington Group Ltd.	15
15. Pyrobel 16	AGC Flat Glass UK	16

The testing summarised within Section 3 of this report has primarily been conducted utilising Pyroshield 2, which is a non-insulating glass with a relatively thin construction. It is the opinion of Warringtonfire that a glazing system tested with Pyroshield 2 would provide at least the same level of fire resistance if the glass were to be substituted for a thicker proven fire resisting glass. Based on this judgment the above detailed glass types (2-15) have been positively appraised for use within this Scope of Application.

6.2.2 Assessed Glass – 60 Minute Applications

Based on the cited test evidence as summarised within Section 3, the following glass types can be considered for use with the Norseal glazing systems, subject to the provisos above.

The maximum glass thickness assessed is 16mm.

Glass Type	Manufacturer	Glass Thickness
1. Pyroshield 2 (see section 6.2.2)	Pilkington Group Ltd.	6 & 7
2. Pyran S	Schott Glass Ltd.	6
3. Pyrostem	Pyroguard (UK) Ltd.	6
4. Pyrodur 60-10	Pilkington Group Ltd.	10
5. Pyranova 15-S2.0	Schott UK Ltd.	11
6. Pyrobelite 12	AGC Flat Glass UK	12
7. Pyrodur 60-20	Pilkington Group Ltd.	13
8. Pyroguard EI 30	Pyroguard (UK) Ltd.	15
9. Pyrostop 30-10	Pilkington Group Ltd.	15
10. Pyrobel 16	AGC Flat Glass UK	16

The testing summarised within Section 3 of this report has primarily been conducted utilising Pyroshield 2, which is a non-insulating glass with a relatively thin construction. It is the opinion of Warringtonfire that a glazing system tested with Pyroshield 2 would provide at least the same level of fire resistance if the glass were to be substituted for a thicker proven fire resisting glass. Based on this judgment the above detailed glass types (2-10) have been positively appraised for use within this Scope of Application.

Glass types that require specific glazing systems have been omitted from this assessment.

6.2.3 Pyroshield 2 – 60 Minute Applications

Based on the cited test evidence as summarised within Section 3, Pyroshield 2 may be used; maximum pane sizes are restricted as shown below.

Glass Type	Glazing Systems	Maximum Pane Size* (height x width – mm)	Maximum Area (m^2)
Pyroshield 2	Norseal Vision 60B & 60T	814 x 814 (IF12027)	0.66

* The heights and widths listed are the maximum single dimension allowable for an individual pane utilising the relevant glazing system; maximum dimensions may not be increased even if the other dimension for the pane is reduced.

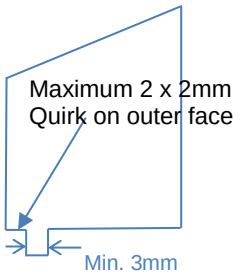
6.2.4 Glazing Beads and Installation

All timber for glazing beads must be joinery quality timber (MDF, softwood or hardwood as specified in the table below), free from knots, splits and checks.

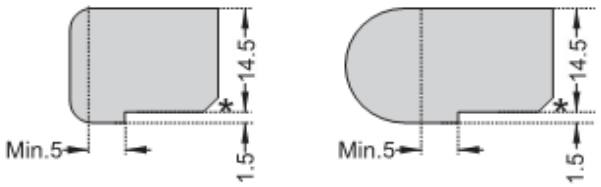
The use of Beech (Fagus species) is not permitted for 60 minute applications.

Integrity Performance	Bead Profile	Material	Min Density (kg/m3)
30	All in section 6.3	Softwood	510
		Hardwood	
		MDF	700
60	All in sections 6.4 and 6.5	Hardwood	640

As illustrated below, it is permitted to rebate a 2mm x 2mm quirk on the outer face of flush beads, provided a minimum 3mm wide timber element remains intact in contact with the leaf framing. The 5mm dimension shown below on the typical flush bead types may be reduced to the quoted 3mm.



Typical Flush Bead Types:



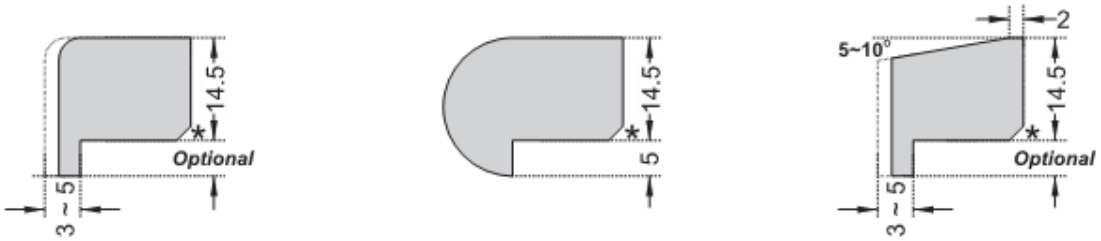
6.3 Norseal Vision 30B & 30T Applications

The following bead designs are assessed as acceptable for 30 minutes fire resistance, based upon the testing as summarised within Section 3.

NOTE 1: ⁎ = 2mm Splay applies to all bead profile types.

Typical Flush Bead Types:

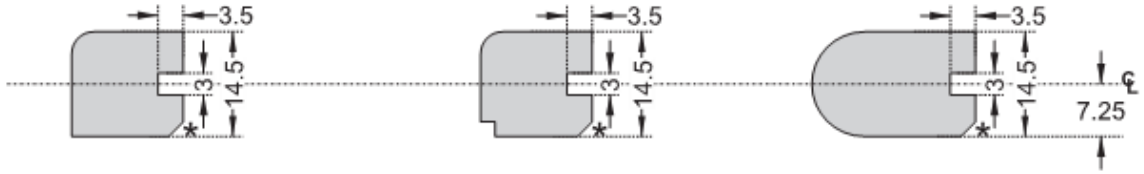
Typical Bolection Bead Types:



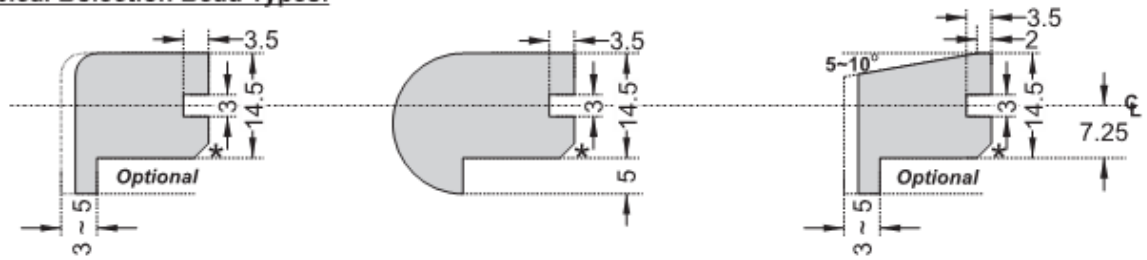
Norseal Vision 30T may utilise the same range of bead shapes.

NOTE 1: ⁎ = 2mm Splay applies to all bead profile types.

Typical Flush Bead Types:



Typical Bolection Bead Types:

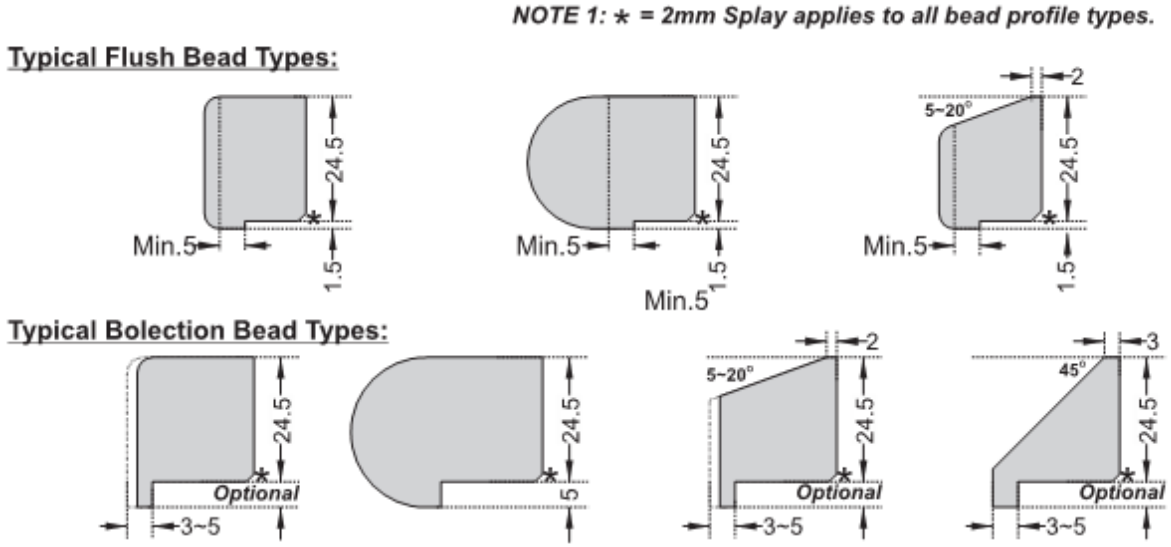


Notes:

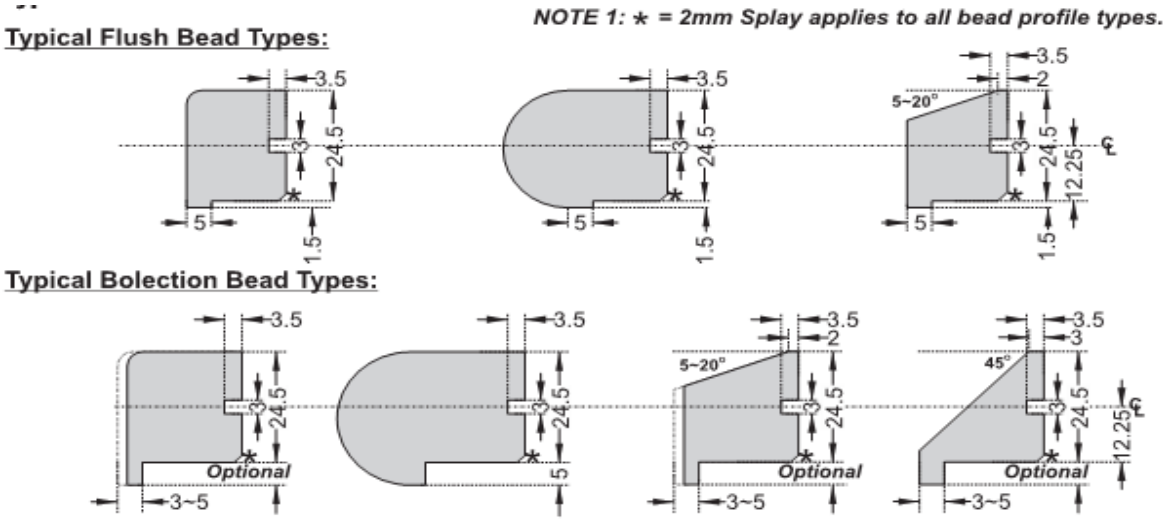
1. Bead height must be nominally 14.5mm
2. The intumescent seal component of Norseal Vision 30B and 30T is 15mm high and is required to project 0.5mm above the sightline of the bead
3. The position of the groove in the rear of the bead is therefore critical for installation of Norseal Vision 30T
4. Bolection returns should be a minimum of 5mm high, and a minimum of 3mm thick (projecting from the leaf face)
5. Glazing beads must be retained in position with, minimum, 40mm long x 1.5mm diameter steel pins or, minimum, 40mm long No 6 - 8 screws, inserted at 35-40º to the vertical, at no more than 40mm from each corner and at 150mm maximum centres.
6. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7.

6.4 Norseal Vision 60B & 60T Applications

The following bead designs are assessed as acceptable for 60 minutes fire resistance, based upon the testing as summarised within Section 3.



Norseal Vision 60T may utilise the same range of bead shapes.



Notes:

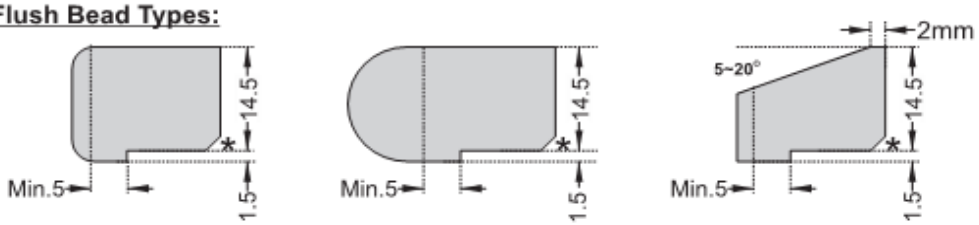
1. Bead height must be nominally 24.5mm
2. The intumescent seal component of Norseal Vision 60B is 25mm high and is required to project 0.5mm above the sightline of the bead
3. Glazing aperture must be lined with the Norseal 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture
4. The use of Beech (Fagus species) is not permitted for 60 minute applications.
5. Bolection returns should be a minimum of 5mm high, and a minimum of 3mm thick (projecting from the leaf face)
6. Glazing beads must be retained in position with, min, 50mm long x 2mm diameter steel pins or 50mm 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.
7. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7.

6.5 Norseal Vision 60B & 60T Slimline Applications

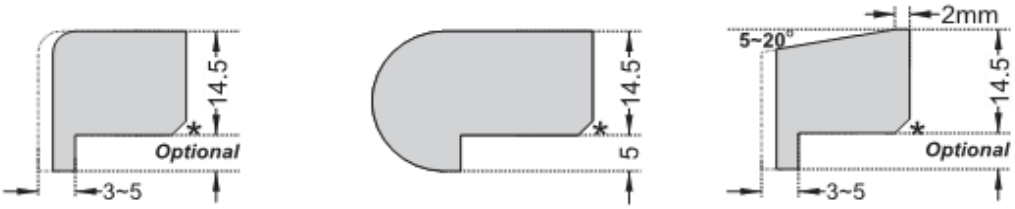
The following bead designs are assessed as acceptable for 60 minutes fire resistance, based upon the testing as summarised within Section 3.

NOTE 1: ⋆ = 2mm Splay applies to all bead profile types.

Typical Flush Bead Types:

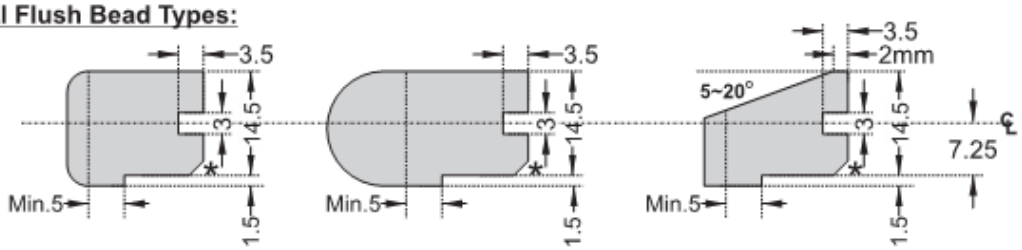


Typical Bolection Bead Types:

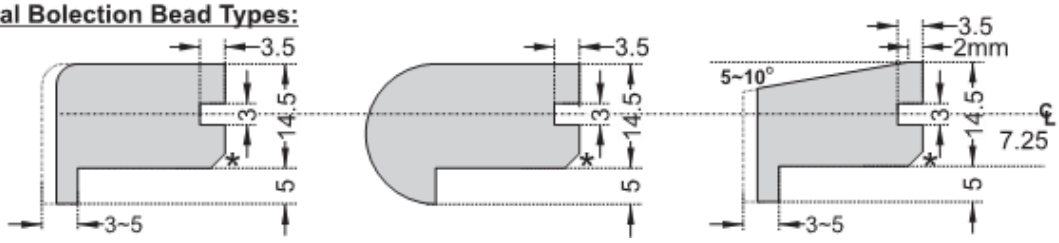


Norseal Vision 60T Slimline may utilise the same range of bead shapes.

Typical Flush Bead Types:



Typical Bolection Bead Types:



Notes:

1. Bead height must be nominally 14.5mm
2. The intumescent seal component of Norseal Vision 60B Slimline is 15mm high and is required to project 0.5mm above the sightline of the bead
3. Glazing aperture must be lined with the Norseal 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture
4. Bolection returns should be a minimum of 5mm high, and a minimum of 3mm thick (projecting from the leaf face)
5. The use of Beech (Fagus species) is not permitted for 60 minute applications.
6. Glazing beads must be retained in position with, minimum, 50mm long x 2mm diameter steel pins or, minimum, 50mm 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
7. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7

6.6 Norseal Universal Applications

The following bead designs are assessed as acceptable for 60 minute fire resistance, based upon the testing as summarised within Section 3.

Notes:

1. Bead height must be nominally 14.5mm and include a 1.5mm rebate to allow for the application of the glazing liner.
2. The intumescent seal component of Norseal Universal is 15mm high and is required to project 0.5mm above the sightline of the bead
3. Glazing aperture must be lined with the Norseal LNR4202; liner is supplied at 42mm wide – liner must be fitted centrally in the glazed aperture
4. The bead must finish flush to the face of the leaf to allow for the application of the Norseal Universal Cover Plate
5. The use of Beech (Fagus species) is not permitted for 60 minute applications.
6. Glazing beads must be retained in position with, minimum, 50mm long x 2mm diameter steel pins or, minimum, 50mm long No 6-8 screws, inserted at 35-40º to the vertical at no more than 40mm from each corner and at 150mm maximum centres
7. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7

6.7 Pneumatic Fired Pins

6.7.1 General

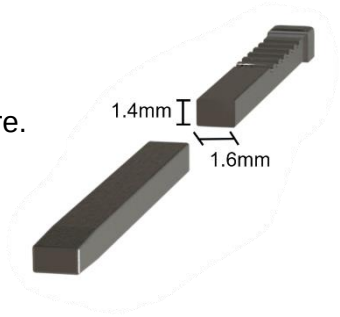
The following minimum pin specification is permitted and is considered suitable for gun (pneumatically) fired applications. There are many pins/brads on the market which are sold as SWG 16 but are often below the minimum dimensions stated below. The use of these pins is not covered by the scope of this assessment.

6.7.2 Option 1 – Round, Oval and Rectangle Shaped Pins

- Minimum Standard Wire Gauge (SWG) 16
- Minimum cross section area of 2.03mm^2
- Minimum linear dimension 1.6mm in any direction, see figure below.

6.7.3 Option 2 – Rectangular Shaped Pins

- Minimum Standard Wire Gauge (SWG) 16
- Minimum cross section area of 2.24mm^2
- Minimum linear dimension as shown in the figure.
- The 1.6mm dimension is predominately orientated perpendicular to the glass, where possible.



Pins with dimensions less than those stated above <u>are not covered by this Scope of Application.</u>

7 Timber Based Fire Resisting Doors

The Norseal Vision glazing systems have been successfully subjected to testing for 30 and 60 minutes fire resistance to either BS 476: Part 20: 1987 or BS 476: Part 22: 1987 and are approved for use with the different types of proprietary timber doorset designs as outlined within Section 6.1 of this report, with the following size limitations.

Glazed area dimensions as detailed in the relevant door manufacturer's Field of Application documentation take precedence, if they are smaller than the dimensions stated below.

For all other details the full construction requirements of the doorset, the relevant manufacturer's field of application documentation must be complied with.

7.1 Norseal Vision 30B and 30T Glazing Systems

Element	Specification
Permitted glass types (see table in section 6.2.1):	1 – 15
Maximum permitted aperture size (m^2):	0.66
Bead material:	See section 6.2.4
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	Not required

The maximum permitted aperture size is based upon the maximum tested glazed aperture size as outlined within IF12011 as summarised within Section 3 of this report.

7.2 Norseal Vision 60B & 60T Glazing Systems

Element	Specification
Permitted glass types (see table in section 6.2.2):	1 – 10
Maximum permitted aperture size (m^2):	0.66
Bead material:	See section 6.2.4
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	See section 5.1

The maximum permitted aperture size is based upon the maximum tested glazed aperture size as outlined within IF12027 as summarised within Section 3 of this report.

7.3 Norseal Vision 60B Slimline Glazing System

Element	Specification
Permitted glass types (see table in section 6.2.2):	2 – 10
Maximum permitted aperture size (m^2):	0.66
Bead material:	See section 6.2.4
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	See section 5.1

The maximum permitted aperture size is based upon the maximum tested glazed aperture size as outlined within IF12027 as summarised within Section 3 of this report.

7.4 Norseal Universal Glazing System

Element	Specification
Permitted glass types (see table in section 6.2.2):	2 – 10
Maximum permitted aperture size (m^2):	0.52
Bead material:	See section 6.2.4
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	See section 5.1

The maximum permitted aperture size is based upon the maximum tested glazed aperture size as outlined within IF13077 as summarised within Section 3 of this report.

7.5 Additional Installation Requirements

The following points must be considered when glazing fire resisting doors using one of the Norseal Vision glazing systems.

1. Gaps between glass and framing, to permit expansion, should be set at 2 – 3mm on all edges, using non-combustible or hardwood setting blocks at the bottom edge
2. It is not permitted to increase the height of the bead beyond the nominal figures given in sections 6.3, 6.4 and 6.5 above
3. Pneumatically fired pins are acceptable providing the pins meet the specification(s) given in section 6.7.

8 Norseal Glazing Systems – Fanlights and Sidescreens

See section 6 for details of installation within door leaves.

8.1 General

The fire resisting doorset designs subject for use with this Scope of Application as identified in Section 6.1, may be approved to include glazed fanlights and/or side screens. The specific Field of Application for the chosen doorset must be referred to in this instance. If side screens and fanlights are permitted, the following section may be applied to the doorset design.

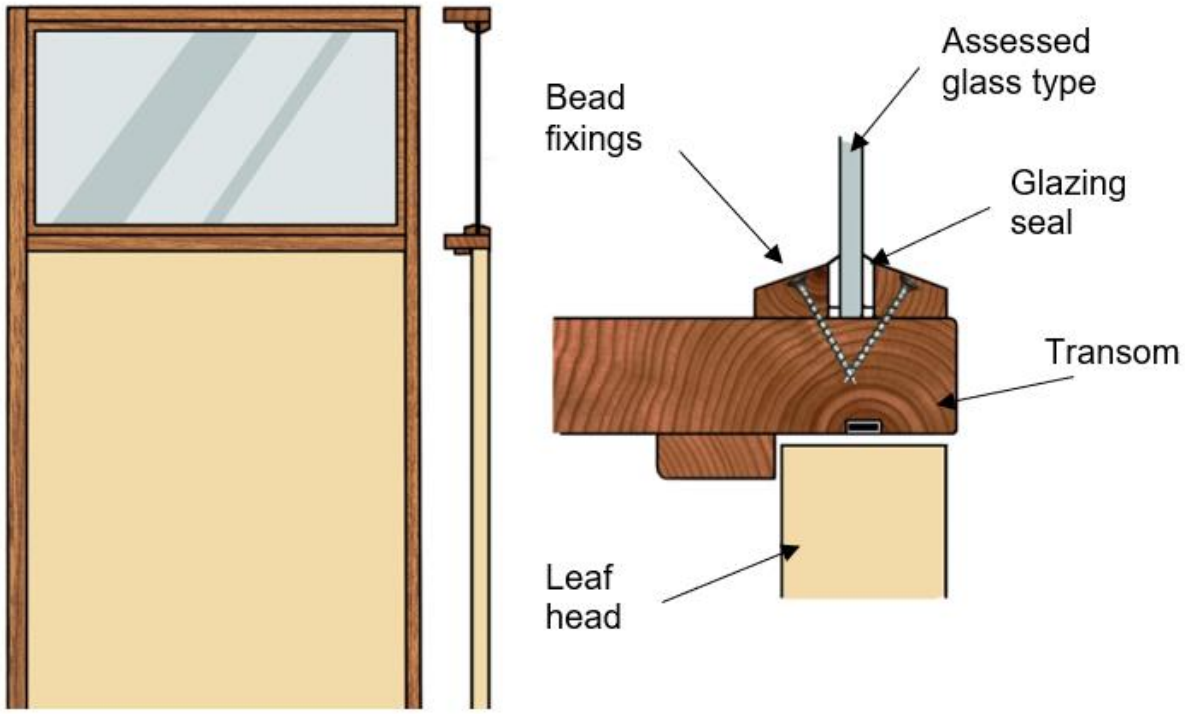
The glazing system and beads must meet the specification shown in section 8.8.

The door frame and screen framing construction must comply with the specification shown in section 8.9. The use of Beech (Fagus species) is not permitted for 60 minute applications.

Norseal Vision 60 Slimline and Norseal Universal systems must not be used to glaze fanlight and sidescreen installations.

The following elements are considered within this Scope of Application:

Screen Element	Configuration	Size
Fanlight	Single & double doorsets	See Section 8.4 & 8.5 respectively
Side screen	Single & double doorsets	



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

8.2 Assessed Glass – 30 minutes fire resistance

Based on the cited test evidence as summarised within Section 3, the following glass types can be considered for use with the Norseal glazing systems for use in glazed side screens and fanlights, subject to the provisos above.

The maximum glass thickness assessed is 16mm.

Glass Type	Manufacturer	Glass Thickness
1. Pyroshield 2	Pilkington Group Ltd.	6 & 7
2. Pyran S	Schott Glass Ltd.	6
3. Pyrostem	Pyroguard (UK) Ltd.	6
4. Pyroguard EW 30	Pyroguard (UK) Ltd.	7
5. Pyranova S3.07	Schott UK Ltd.	7
6. Pyrobelite 7	AGC Flat Glass UK	7
7. Pyrodur 30-104	Pilkington Group Ltd.	7
8. Pyrodur 60-10	Pilkington Group Ltd.	10
9. Pyroguard EW MAXI	Pyroguard (UK) Ltd.	11
10. Pyranova 15-S2.0	Schott UK Ltd.	11
11. Pyrobelite 12	AGC Flat Glass UK	12
12. Pyrodur 60-20	Pilkington Group Ltd.	13
13. Pyroguard EI30	Pyroguard (UK) Ltd.	15
14. Pyrostop 30-10	Pilkington Group Ltd.	15
15. Pyrobel 16	AGC Flat Glass UK	16

The testing summarised within Section 3 of this report has primarily been conducted utilising Pyroshield 2, which is a non-insulating glass with a relatively thin construction. It is the opinion of Warringtonfire that a glazing system tested with Pyroshield 2 would provide at least the same level of fire resistance if the glass were to be substituted for a thicker proven fire resisting glass. Based on this judgment the above detailed glass types (2-15) have been positively appraised for use within this Scope of Application.

Note: The selected glass type from the above table must have evidence of having achieved 30 minutes fire resistance to BS 476-22: 1987 at the desired glass size or larger in order to be considered for use within a glazed side screen or fanlight.

8.3 Assessed Glass – 60 minutes fire resistance

Based on the cited test evidence as summarised within Section 3, the following glass types can be considered for use with the Norseal glazing systems for use with glazed side screens and fanlights, subject to the provisos above.

The maximum glass thickness assessed is 16mm.

Glass Type	Manufacturer	Glass Thickness
1. Pyrodur 60-10	Pilkington Group Ltd.	10
2. Pyranova 15-S2.0	Schott UK Ltd.	11
3. Pyrobelite 12	AGC Flat Glass UK	12
4. Pyrodur 60-20	Pilkington Group Ltd.	13
5. Pyroguard EI 30	Pyroguard (UK) Ltd.	15
6. Pyrostop 30-10	Pilkington Group Ltd.	15
7. Pyrobel 16	AGC Flat Glass UK	16

The testing summarised within Section 3 of this report for screens has primarily been conducted utilising Pyrodur EW60-10, which is a partially insulating glass with a relatively thin construction. It is the opinion of Warringtonfire that a glazing system tested with Pyrodur EW60-10 would provide at least the same level of fire resistance if the glass were to be substituted for a thicker proven fire resisting glass with the same or better insulating performance. Based on this judgment the above detailed glass types (2-7) have been positively appraised for use within this Scope of Application.

Note: The selected glass type from the above table must have evidence of having achieved 60 minutes fire resistance to BS 476-22: 1987 at the desired glass size or larger in order to be considered for use within a glazed side screen or fanlight.

8.4 Maximum Permitted Sizes – 30 minute fire resistance

This section outlines the maximum permitted size for apertures used within glazed side screens or fanlights. The maximum sizes outlined herein are to be used in conjunction with the assessed glass as detailed within Section 8.2.

8.4.1 Norseal Vision 30B & 30T – Maximum Permitted sizes

Element	Specification
Permitted glass types	1 – 15
Maximum permitted aperture size for Side screens or Fanlights consisting of a single glazed aperture (m^2):	1.52
Maximum permitted aperture size for Side screens or Fanlights consisting of two or more glazed apertures (m^2):	0.39
Bead material:	See section 8.8.1 & 8.8.3
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	Not required.

The above detailed maximum permitted size for a glazed construction consisting of a single aperture is based upon test report IF12050, as summarised within Section 3.

The above detailed maximum permitted size for glazed constructions consisting of two or more glazed apertures is based upon IF12052, as summarised within Section 3. It has been noted that a failure was observed at 28 minutes within IF12052. The recorded failure occurred local to the perimeter of the largest glazed area within a multi-pane construction which measured 0.59m^2. For this reason, it has been deemed appropriate to limit the maximum dimension of glazed apertures within multi-pane constructions to 0.39m^2. A further test was conducted referenced IF13012 which achieved a positive result in excess of 30 minutes, however, it is not possible to extend the scope from that detailed above. Providing the maximum aperture size of individual apertures within multi-pane constructions is adhered to (0.39m^2 for any single aperture), it is considered within this scope of application that the maximum glazed area for multi-pane constructions (for use as side screens or fanlights) may consist of a maximum glazed area of 1.52m^2.

8.5 Maximum Permitted Sizes – 60 minute fire resistance

This section outlines the maximum permitted sizes for apertures used within glazed side screens or fanlights. The maximum sizes outlined herein are to be used in conjunction with the assessed glass as detailed within Section 8.3.

8.5.1 Norseal Vision 60B & 60T – Maximum Permitted sizes

Element	Specification
Permitted glass types	1 – 8
Maximum permitted aperture size for Side screens or Fanlights consisting of a single glazed aperture (m^2):	1.52
Maximum permitted aperture size for Side screens or Fanlights consisting of two or more glazed apertures (m^2):	0.59
Bead material:	See Section 8.8.2 & 8.8.3
Bead fixings:	
Minimum required bead sizes:	
Aperture liner:	Nominally – 2mm thick x minimum 42mm wide

The above detailed maximum permitted size for a glazed construction consisting of a single aperture is based upon test report IF12051, as summarised within Section 3.

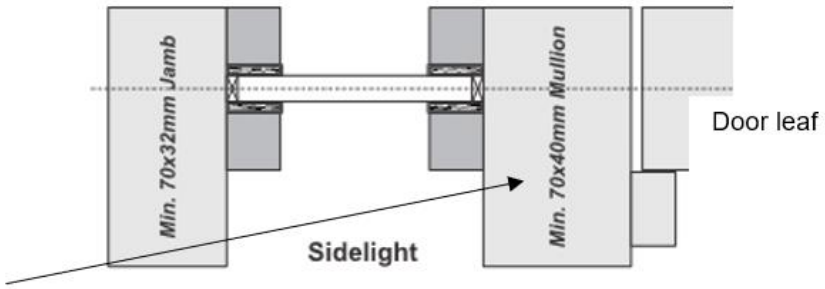
The above detailed maximum permitted size for glazed constructions consisting of two or more glazed apertures is based upon IF12053, as summarised within Section 3.

Providing the maximum aperture size of individual apertures within multi-pane constructions is adhered to (0.59m^2 for any single aperture), it is considered within this scope of application that the maximum glazed area for multi-pane constructions (For use as side screens or fanlights) may consist of a maximum glazed area of 1.52m^2.

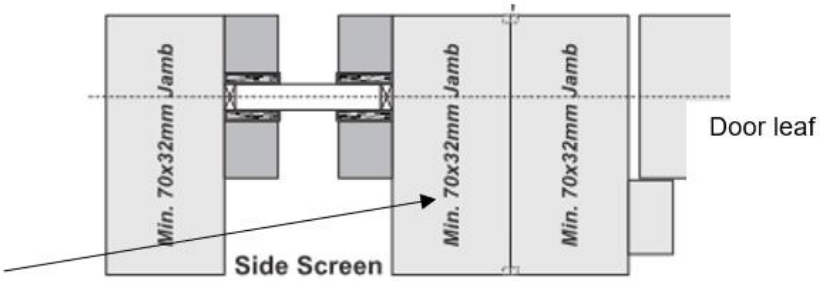
8.6 Common Frame Sections

The following drawings depict possible constructions of common frame sections for screens and door frame jambs:

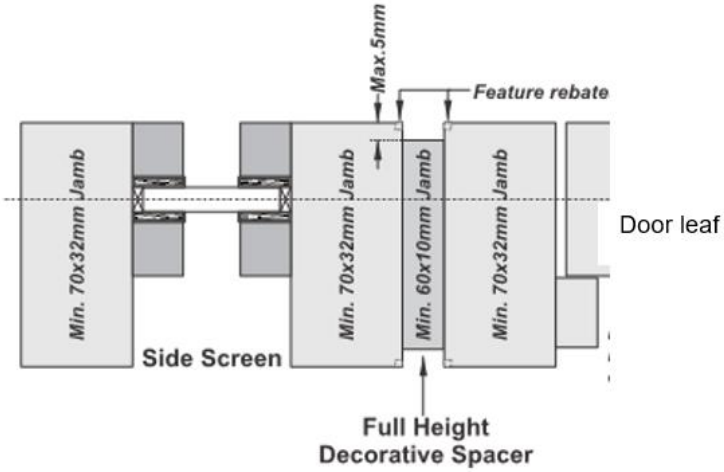
Option 1 - One frame section



Option 2 - Back to back frame section



Option 3 - Back to back frame section with separating post, which may be rebated a maximum of 5mm as shown



When using separate sections of timber, as shown above (options 2 and 3), each section must be suitably fixed to one-another using appropriate steel screw fixings and glued using Urea Formaldehyde or polyurethane. Screws must be fixed at 600mm centres and locate to approx 2/3 depth of the adjacent timber section. The overall frame section and material must match that given in this assessment for each glass type and glazing specification. Joints must be tight with no gaps.

It is permitted to include maximum 3mm (w) x 3mm (d) quirks/pencil rounds at the junction of each timber section for options 2 and 3.

Drawings are representative of each type of common frame section makeup, actual construction in terms of intumescent seal location and material etc. must be as the text within this document specifies.

8.7 Fanlight & Sidelight Configurations

Glazed side screens and fanlights are considered within this scope of application for the glazing systems Norseal Vision 30B & 30T as well as Norseal Vision 60B & 60T. Where a glazed screen is utilised the following parameters must be adhered to:

Timber screen framing must be in line with Section 8.9 of this report.

Side Screen without fanlight

Single aperture

It is permitted to apply a side screen consisting of a single glazed aperture, to one of / both sides of a doorset assembly, providing the glazed area of each aperture does not exceed the maximum dimension permitted as outlined within Section 8.4 & 8.5 for the respective levels of fire resistance performance and associated glazing system.

Where the sidescreen is applied to the side of a doorset assembly the glazed side screen frame shall be level with the head of the doorset framing.

Multi-pane aperture

It is permitted to apply a side screen consisting of multiple glazed apertures, to either / both sides of a doorset assembly, providing the glazed area of each aperture does not exceed the maximum dimension permitted as outlined within Section 8.4 & 8.5 & the overall glazed area does not exceed the maximum permitted glazed for the respective levels of fire resistance performance and associated glazing system.

Where the sidescreen is applied to the side of a doorset assembly the glazed side screen frame shall be level with the head of the doorset framing.

Fanlight without sidescreen

Single aperture

It is permitted to apply a glazed fanlight consisting of a single glazed aperture, to the head of a doorset assembly, providing the glazed area of the aperture does not exceed the maximum dimension permitted as outlined within Section 8.4 & 8.5 for the respective levels of fire resistance performance and associated glazing system.

Where a glazed fanlight is applied across the head of a doorset the glazed fanlight framing must remain the width of the doorset assembly.

Multi-pane aperture

It is permitted to apply a glazed fanlight consisting of multiple glazed apertures, to the head of a doorset assembly, providing the glazed area of the aperture does not exceed the maximum dimension permitted as outlined within Section 8.4 & 8.5 & the overall glazed area does not exceed the maximum permitted glazed for the respective levels of fire resistance performance and associated glazing system.

Where a glazed fanlight is applied across the head of a doorset the glazed fanlight framing must remain the width of the doorset assembly.

Combination of Sidescreen & Fanlight

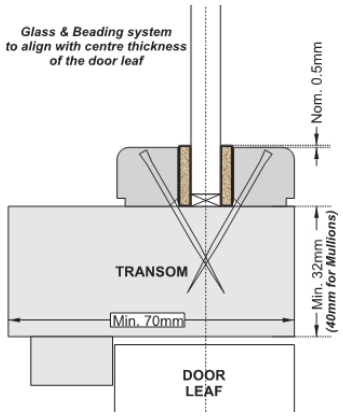
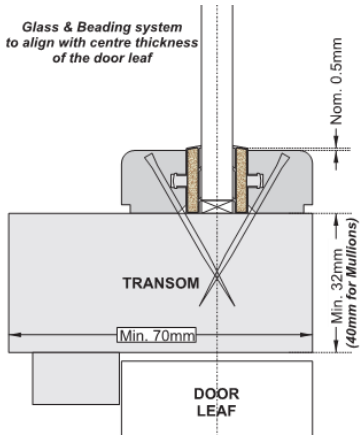
It is permitted to apply both side screens to one or both sides of a doorset assembly in conjunction with a fanlight. Providing each of the glazed apertures do not exceed the maximum permitted aperture size for Side screens or Fanlights consisting of two or more glazed apertures (m2) outlined within Section 8.4 & 8.5 respectively. In addition the total glazed area must not exceed the maximum permitted glazed area for a single screen arrangement.

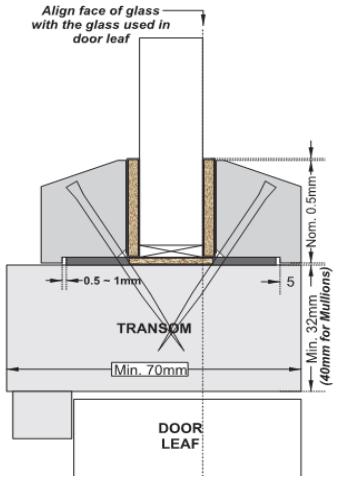
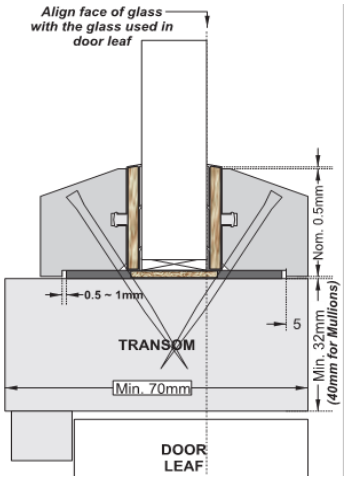
Where the sidescreen is applied to the side of a doorset assembly the glazed side screen frame shall be level with the head of the doorset framing.

Where a glazed fanlight is applied across the head of a doorset the glazed fanlight framing must remain the width of the whole assembly including side screens.

8.8 Glazing Beads and Installation

Glazing beads and intumescent materials must be installed in line with the following sections.

System Name		Norseal Vision 30B	Norseal Vision 30T
Typical Installation			
Dimensions	Bead Height	Nominally 14.5	Nominally 14.5
	Intumescent Seal(s)	15 high x 3 thick	15 high x 3 thick plus ‘plug’
Aperture Liner		Not required	

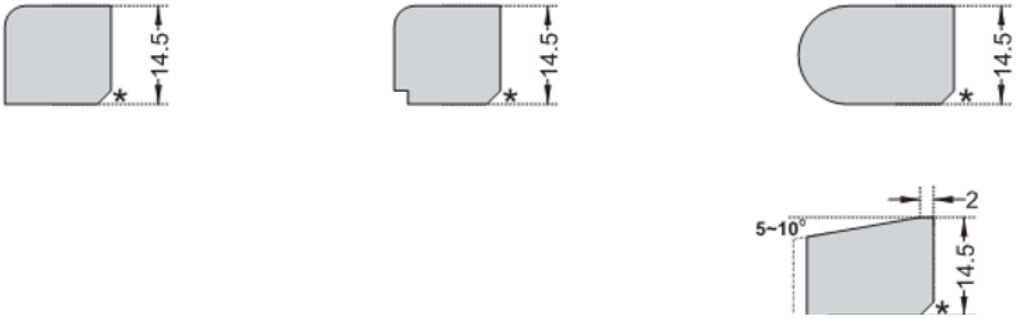
System Name		Norseal Vision 60B	Norseal Vision 60T
Typical Installation			
Dimensions	Bead Height	Nominally 24.5	Nominally 24.5
	Intumescent Seal(s)	25 high x 3 thick	25 high x 3 thick plus 'plug'
Aperture Liner		Nominally – 2mm thick x minimum 42mm wide	

8.8.1 Norseal Vision 30B & 30T Applications

The following bead designs are assessed as acceptable:

NOTE 1: ∗ = 2mm Splay applies to all bead profile types.

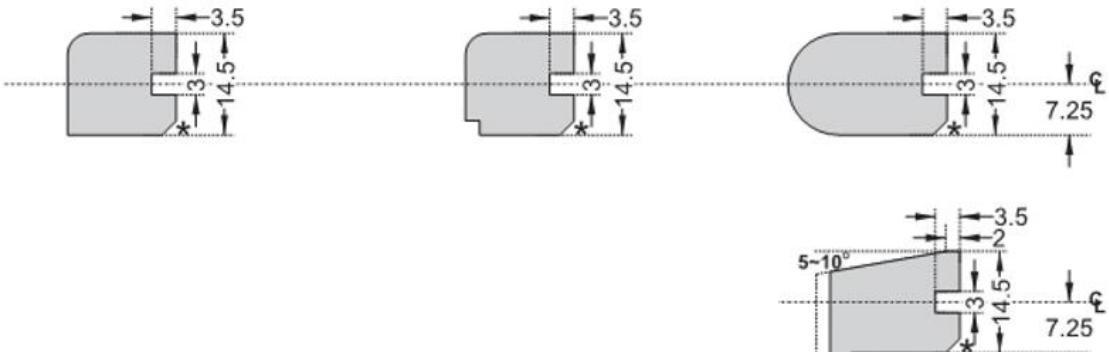
Typical Flush Bead Types:



Norseal Vision 30T may utilise the same range of bead shapes.

Typical Flush Bead Types:

NOTE 1: ⁎ = 2mm Splay applies to all bead profile types.

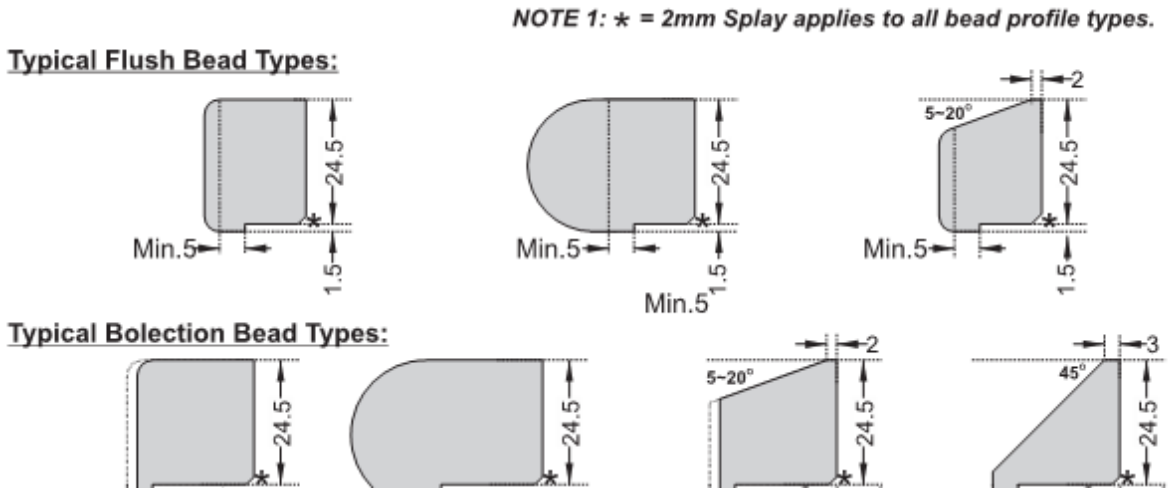


Notes:

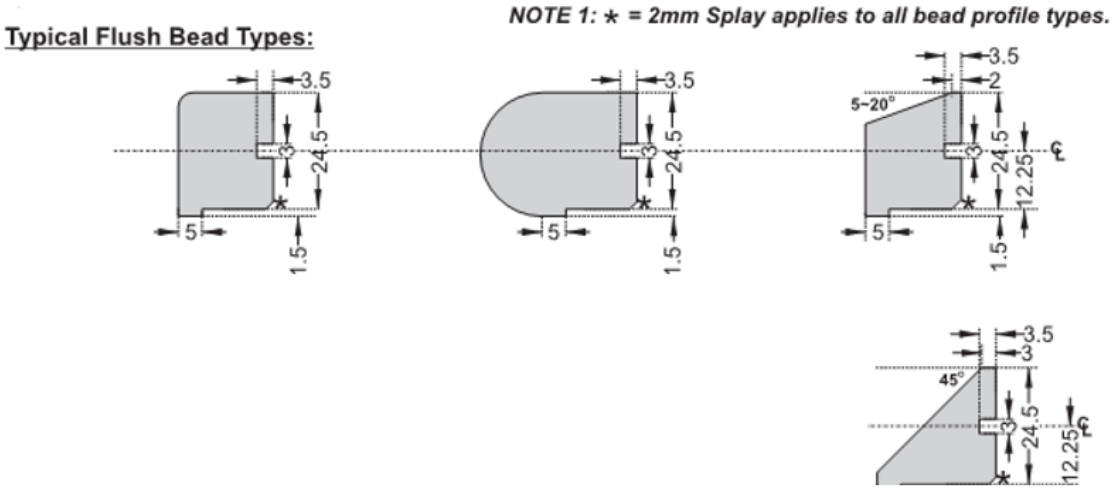
1. Bead height must be nominally 14.5mm
2. The intumescent seal component of Norseal Vision 30B and 30T is 15mm high and is required to project 0.5mm above the sightline of the bead
3. The position of the groove in the rear of the bead is therefore critical for installation of Norseal Vision 30T
4. Glazing beads must be retained in position with, minimum, 40mm long x 1.5mm diameter steel pins or, minimum, 40mm long No 6-8 screws, inserted at 35-40º to the vertical at no more than 40mm from each corner and at 150mm maximum centres
5. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7.

8.8.2 Norseal Vision 60B & 60T Applications

The following bead designs are acceptable:



Norseal Vision 60T may utilise the same range of bead shapes.



Notes:

1. Bead height must be nominally 24.5mm
2. The intumescent seal component of Norseal Vision 60B & 60T is 25mm high and is required to project 0.5mm above the sightline of the bead
3. Glazing aperture must be lined with the Norseal 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture
4. Glazing beads must be retained in position with, minimum, 50mm long x 2mm diameter steel pins or, minimum, 50mm 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
5. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.7.

8.8.3 Glazing Bead Material

All timber for glazing beads must be joinery quality timber (MDF, softwood or hardwood as specified in the table below), free from knots, splits and checks. The use of Beech (Fagus species) is not permitted for 60 minute applications.

Integrity Performance	Bead Profile	Material	Min Density (kg/m^3)
30	All in section 8.8.1	Softwood	540
		Hardwood	
		MDF	700
60	All in section 8.8.2	Hardwood	640

8.9 Timber Screen Framing

Timber used for constructing framing elements comprising fanlight and sidescreen assemblies as detailed in section 8.7 must meet the following specification.

Door frame jambs and transoms must meet the requirements stipulated within the supporting documentation for the relevant door leaf as specified.

Integrity Performance	Material	Minimum Section Size^2 (mm)	Min Density (kg/m^3)
30	Softwood	70 x 32^3	540
	Hardwood		
60	Hardwood	70 x 32^3	640

Notes:

1. These timber sections can be used for the perimeter framing of the screen and the transoms separating individual panes of glass within the fanlights and side screens
2. Mullions must be minimum 40mm thick for both 30 and 60 minutes integrity performance excluding the stop
3. The fanlights and side screens may comprise multiple panes of glass (See Section 8.7) providing the total doorset and screen assembly does not exceed 2950mm high and the transom/ mullion restrictions above are complied with
4. Gaps between glass and framing, to permit expansion, should be set at nominally 3mm on all edges, using non-combustible or hardwood setting blocks at the bottom edge.

9 Conclusion

This supplementary scope of application report provides a scope of application for Norseal Vision 30B, Norseal 30T, Norseal Vision 60B, Norseal Vision 60T, Norseal Vision 60B Slimline or Norseal Universal glazing systems to be fitted to proprietary timber based fire resisting doorset designs. Providing the items discussed are fitted in accordance with the information provided and all other details as given in the relevant main assessment for the doorset design (see section 3.2) are followed, it is the opinion of Warringtonfire that the relevant doorset will provide a minimum 30 or 60 minutes fire resistance, as appropriate, if tested in accordance with BS 476: Part 22: 1987.

10 Declaration by the Applicant

1) We the undersigned confirm that we have read and comply with obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments and engineering evaluations based on fire test evidence 2021 Industry Standard Procedure
2) We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
3) 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.
4) 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.
5) 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.

(in accordance with the principles of FTSG Resolution No. 82: 2001)

Signed: 

Name: Michael Spoors

Position: Director

Date: 27/07/2021

For and on behalf of: Norseal Limited

11 Limitations

The following limitations apply to this assessment:

1) This scope of application assessment addresses itself solely to the elements and subjects discussed and do not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
2) This scope of application assessment report is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to Warringtonfire, 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.
3) This scope of application has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
4) Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.
5) This scope of application 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 scope of application, the element is suitable for its intended purpose.
6) This scope of application assessment report represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this scope of application would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.
7) This report may only be reproduced in full. Extracts or abridgements of reports shall not be published without permission of Warringtonfire. All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at https://www.element.com/terms/terms-and-conditions or upon request.
8) The version/revision stated on the front of this scope of application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the scope of application cannot be used once an updated scope of application assessment has been issued under a new revision.
9) This supplementary field of application cannot be used to demonstrate the fire resistance performance of a doorset design by itself, it must be used in conjunction with one of the main assessments for proprietary doorset designs as listed in section 3.2. All construction details must be in accordance with the relevant main assessment for the doorset design apart from those items specifically addressed herein.

12 Validity

1) The scope of application is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.
2) This scope of application report is not valid unless it incorporates the declaration given in Section 10 duly signed by the applicant.

Signature:		
Name:	**N Whitelock***	**P Barker***
Title:	Product Assessor	Technical Manager

* For and on behalf of Warringtonfire

Appendix A: Revisions

Rev.	WF Ref.	Date	Description
A	CNA/F16005	10.06.16	5 year revalidation, format update, introduction of Halspan® 30 Optima & 60 Optima, Falcon Strebord 35+, 38+ and Superpan, Pacific Rim Wood Safeguard 30 & 60 and Sentry Protech 30 & 60 proprietary fire rated door blanks and AGC Pyrobel 16mm, 15mm Pyroguard EI 30, 15mm Pilkington Pyrostop 30-10, 13mm Pilkington Pyrodur 60-20 and 12mm AGC Pyrobelite 12 glass types
B	WF505050	22.07.2021	5 year revalidation, format update, rewritten in accordance with EN 15725: 2010. • Summarised test evidence in Section 3 • Removal of Pacific Rim Wood Safeguard 30 & 60 due to validity lapse. • Removal of references of permitted glazed areas within referenced Field of Applications • Scope for each of the glazing system's defined for use within Doorsets and glazed sidescreens and fanlights. • Introduction of Norseal Universal glazing system for use within glazed fire doorsets for 60 minutes. • Reduction in scope of glass types covered for each use. • Removal of Pilkington Pyroshield as it is no longer available. • Rebranded Norsound references to align with sponsors brand "Norseal" • Removal of "generic timber fire resisting doorset section" • Removal of option for Pyroguard 11 at 60 minutes without direct test evidence in Norseal glazing systems