

**Title:**

An Additional Assessment  
Report of the Fire  
Performance of Fire-Rated  
Glazed Steel Doorsets

**Report No:**

418156A Issue 3

**Prepared for:**

**Crittall Windows Limited**

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**Date:**

9<sup>th</sup> April 2020

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## Foreword

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This assessment report has been commissioned by the Crittall Windows Limited and relates to the fire resistance of glazed steel doorsets.

This assessment 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*, as appropriate.

This assessment uses established empirical methods of extrapolation and experience of glazed steel doorsets in order to extend the scope of application by determining the limits for the design based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance performance if the elements were to be tested in accordance with BS 476: Part 22: 1987. This assessment cannot therefore be considered for a CE marking application nor can the conclusion be used to establish a formal classification against EN13501-2.

This assessment has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated glazed steel doorsets design and is summarised in the supporting data in this report.

The defined scope presented in this assessment report relates to the behaviour of the proposed glazed steel doorsets design under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the doorset assemblies in use.

This assessment has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Guide to undertaking technical assessments of the fire performance of the fire performance of construction products based on fire test evidence – 2019. 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 in lieu of fire tests for building control and other purposes.

The PFPF guidelines are produced in association with the major fire testing, certification bodies and trade associations in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

## Executive Summary

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**Objective** This report presents an appraisal of the expected fire resistance performance of a W20 glazed steel doorsets with or without sidelights. The doorsets are required to have a fire resistance performance of 30 minutes integrity only in accordance with BS 476: Part 22: 1987.

**Report Sponsor** **Crittall Windows Limited**

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**Summary of Conclusions** It is expected that the proposed W20 glazed steel doorsets with or without sidelights discussed in this report would achieve a fire resistance performance of 30 minutes integrity performance if subjected to a test in accordance with BS 476: Part 22: 1987.

**Opinion** This assessment represents our opinion as to the performance likely to be demonstrated on tests in accordance with BS 476 Part 22:1987 on the basis of the evidence referred to below. We express no opinion as to whether that evidence, and/or this assessment, would be regarded by any Building Control authority as sufficient for that or any other purpose. This assessment is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

**Valid until** 4<sup>th</sup> November 2024

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## Introduction

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This report presents an appraisal of the expected fire resistance performance of W20 glazed steel doorsets with or without sidelights. The doorsets are required to have a fire resistance performance of 30 minutes integrity only in accordance with BS 476: Part22: 1987.

**FTSG/PFPF** The data referred to in the supporting data section has been considered for the purpose of this appraisal which has been prepared in accordance with the Fire Test Study Group Resolution No. 82:2001 and the Passive Fire Protection Federation (PFPF) Guide to Undertaking Assessments in Lieu of Fire Tests.

## Assumptions

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**Supporting Construction** It is assumed that the supporting constructions for the fire rated steel glazed doorsets are capable of providing the required level of fire performance to effectively support the doorsets without detriment to their fire performance

under the heat conditions of BS 476-22: 1987 for 30 minutes.

## Design

It is assumed that the W20 doorset assemblies will be constructed as tested in WF 400727A and 400728A or as discussed and approved in this assessment report.

## Installation

It is assumed that the proposed doorset assemblies will be installed by competent installers.

# Proposal

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<b>Alternative Glasses</b>	It is proposed that alternative fire rated glass types be approved for the doorsets other than the Pyrodur tested in WF 400727A and WF 400728A.
<b>Additional Glazing Bars</b>	It is proposed that additional horizontal and/or vertical glazing bars may be fitted to the door leaves and sidelights discussed in this assessment.
<b>Coupling Bars</b>	It is proposed that alternative coupling bars may be fitted to the doorsets discussed in this assessment.
<b>Sidelight Jamb Bars</b>	It is proposed that alternative sidelight jamb bars may be fitted in the doorsets discussed in this assessment
<b>Threshold Seal</b>	It is proposed that the threshold seal fitted in the test doorset assemblies may be omitted.
<b>Door Closer</b>	It is proposed that door closers may be fitted to the exposed face of the tested doorsets.
<b>Door Handles</b>	It is proposed that alternative totally metallic door handles may be fitted to the doorsets discussed in this assessment.
<b>"Sashlocks" and "Latches"</b>	It is proposed that alternative specified "sashlocks" and "latches" may be fitted to the doorsets discussed in this assessment.
<b>Perimeter Fixing</b>	It is proposed that alternative methods of fixing the doorset frame to the supporting construction may be used.
<b>Double Tray Panels</b>	It is proposed that the double tray panel design used to support the latching arrangement on the tested doorsets may be used in other areas of the door leaves or sidelights.
<b>Bespoke Metal Parts</b>	It is proposed that certain components of the doorset assemblies may be made by other suppliers to the specification detailed in the drawings included in this report.
<b>Top Cap Sealants</b>	It is proposed that alternative capping sealants may be used in the glazing arrangements.
<b>Bottom Bar of Door Leaf</b>	It is proposed that alternative door leaf bottom rail sections may be fitted to the doorsets discussed in this assessment.
<b>Door Sizes and Configurations</b>	The maximum door sizes are defined. It is proposed that single and double doorsets may have sidelights on both sides. The maximum width of glass in the sidelights is defined. Side lights may be shaped within the defined glass sizes.

It is proposed that single doorsets may have transom lights.

### Alternative Glazing Beads

It is proposed that an alternative profile aluminium glazing bead may be used to that in the reference tests.

## Primary Supporting Test Evidence

### WF 400727A

Report WF 400727A describes a fire resistance test on a W20 uninsulated single-acting single leaf doorset with sidelight tested in accordance with BS 476: Part 22: 1987. The doorset had overall dimensions of 2400 mm high by 1356 mm wide, incorporating a leaf with overall dimensions of 2373 mm high by 874 mm wide. The leaf comprised a steel framing with two horizontal intermediate glazing bars forming three glazed panels. Each panel was glazed with 7mm thick Pyrodur EW30-104 with Sealmaster FGT10x2.5 glazing tape and retained with friction fitted aluminium beading on the unexposed face. The leaf incorporated a Eurospec ULS5030 latch set fitted into a steel double tray panel insulated with Rockwool Linear Firestop, density 110kg/m<sup>3</sup>. The leaf was hung within the steel frame on four Steel Window Fittings Ltd BS 2100NW brass hinges. The mating faces of the frame and leaf were lined with 1mm by 22mm Sealmaster GRS22 intumescent. The leaf was fitted with a Zero Seals 53 threshold seal. The leading edge of the leaf was adjacent to the sidelight. The frame was fixed to the supporting structure on all four sides with 25mm by 3mm thick plates welded to the frame and screw to the supporting structure with 75mm stainless screws at 260mm centres. The doorset was installed such that it opened into the furnace and was latched during the test.

The specimen achieved a performance of 38 minutes integrity only at which point the test was terminated.

### WF 400728A

Report WF 400728A describes a fire resistance test on a W20 uninsulated single-acting double-leaf doorset tested in accordance with BS 476: Part 22: 1987. The doorset had overall dimensions of 2400 mm high by 1800 mm wide, incorporating a passive leaf with overall dimensions of 2373 mm high by 902 mm wide and an active leaf with overall dimensions of 2373 mm high by 872 mm wide. The leaves comprised a steel framing with two horizontal intermediate glazing bars forming three glazed panels. Each panel was glazed with 7mm thick Pyrodur EW30-104 with Sealmaster FGT10x2.5 glazing tape and retained with friction fitted aluminium beading on the unexposed face. The active leaf incorporated a Eurospec ULS5030 latch set fitted into a steel double tray panel insulated with Rockwool Linear Firestop, density 110kg/m<sup>3</sup> and the passive leaf included flush bolts at the head and base of the leaf. Each leaf was hung within the steel frame on four Steel Window Fittings Ltd BS 2100NW brass hinges. The mating faces of the frame and leaves and the meeting edges of the door leaves were lined with 1mm by 22mm Sealmaster GRS22 intumescent. The leaves were fitted with a Zero Seals 53 threshold seal. The doorset was installed such that the leaves opened into the furnace and was latched and the flush bolts engaged during the test.

The specimen achieved a performance of 42 minutes integrity only at which point the test was terminated.

### Warres No. 50437

Report Warres No. 50437 describes a fire resistance test on a W20 uninsulated single-acting single leaf doorset, with sidelights on both sides and a transom light, tested in accordance with BS 476: Part 22: 1987. The doorset had overall

dimensions of 2606mm high by 3012mm wide, incorporating a leaf with overall dimensions of 2133 mm high by 1000 mm wide. The leaf comprised a steel framing with two glazed panels and mild steel cross panels with Icerock insulating fibre core. The outer frame with five glazed panels. The glass was 11mm thick Pyrostop on hardwood setting blocks with 3mm by 15mm Fibrefax glazing tape retained with mild steel glass clamps and snap-on beads on the unexposed face. The door leaf was hung on four Smith Willis steel butt hinges and had a Dorma TS85 door closer on the exposed face. The door leaf was latched with a three point Lionheart E9801 Series 90 panic bolt and had a Kleeneze Super-Seal B draught excluder. The specimen was secured with screw fixings directly through the outer frame in to the supporting structure on all four sides. The doorset was installed such that it opened away from the furnace and was latched during the test.

The specimen achieved an insulation performance of 14 minutes and integrity of 58 minutes. The test was terminated at 75 minutes.

## Assessed Performance

### Alternative Glasses

Fire tests WF 400727A and WF 400728A on W20 doorsets were glazed with 7mm thick Pilkington Pyrodur. It is proposed that other fire resisting glasses with a fire performance of at least 30 minute integrity be approved for use in the tested doorsets.

The proposed alternative glasses are Pyrostop, Pyrobel, Pyran S, Firelite and Pyroshield. Like Pyrodur, used in the above tests, Pyrostop and Pyrobel glasses are laminated semi-insulating fire resistant glasses with very similar performance characteristics. Pyran S is a borosilicate glass and Firelite is a ceramic glass. Both of these types of products are purely integrity only but have very low coefficient of thermal expansion and are very resilient to thermal shock. In steel based systems these glasses are known to achieve fire performance in excess of 120 minutes. Pyroshield is an embedded wire glass product which, while the glass will crack under fire conditions, will remain in one piece. All of these products have been on the market for many years and have been fire tested many times.

The height of the tested door leaves and sidelight were split into three with glazing bars resulting in relatively small glass panes and a required fire performance of 30 minutes integrity.

It is therefore positively assessed that Pyrostop, Pyrobel, Pyran S, Firelite or Pyroshield may be substituted for Pyrodur at the sizes assessed in this report for a performance of 30 minutes integrity only.

### Additional Glazing Bars

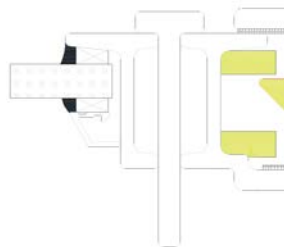
Test WF 400727A was on a doorset of a single leaf door leaf and sidelight with an overall height of 2400mm and 1356mm wide. Both leaf and side light were divided by two horizontal WT2 glazing bars. Test WF 400728A was on a double leaf doorset with an overall height of 2400mm and 1800mm wide. Both leaves were divided by two horizontal WT2 glazing bars. It is proposed that additional horizontal WT2 glazing bars be introduced into the tested door leaves and sidelights. The introduction of further horizontal WT2 glazing bars will provide the doorset with greater stiffness. Reduction in the number of horizontal glazing bars is not permitted due to weakening the approved construction. In the tested door leaves the WT2 glazing bar section was used in a vertical

orientation to form the double tray panel. The introduction of vertical glazing bars will also provide the door leaf with greater stiffness. The introduction of additional horizontal and/or vertical WT2 glazing bars in the door leaves and sidelights discussed in this report is approved for a fire performance of 30 minutes integrity only.

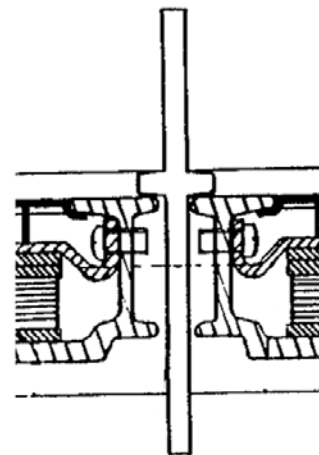
### Coupling Bars

In test WF 400727A the connection between the door frame and the sidelight was made using a WK2 coupling bar. WK2 is a "T" section with a thickness of 5mm and an overall length of 50mm. WK4 was used in fire test Warres No. 50437 and has a cross section thickness of 6mm and 100mm long. It is proposed that WK2 can be replaced with other coupling bars that have a cross section in size between that of WK2 and WK4.

**WK2 Profile**



**WK4 Profile**



Increasing or decreasing the size of the coupling bars introduces the potential for increasing the differential expansion across the system and therefore the potential for integrity failure due to gaps at the leading edge of the leaf. The extended and thicker coupling bar WK4 was used in test Warres No. 50437 which ran on to 54 minutes without integrity failure. The door in this test was slightly shorter than those in WF 400727A and WF 400728A, however, given that the overrun above the required 30 minutes was 80% it is considered that the introduction of this coupling bar into the arrangements tested in WF 400727A and WF 400728A would not have a detrimental effect on the performance of 30 minutes integrity only.

The use of coupling bars of cross sections between WK2 and WK4 are therefore positively assessed and approved for a fire performance of 30 minutes integrity only.

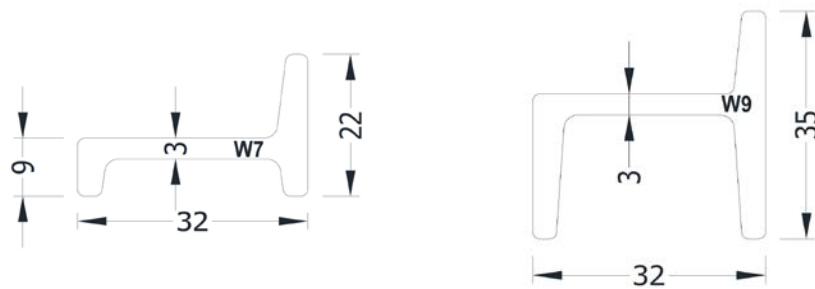
### Sidelight Jamb Bars

In test WF 400727A the sidelight jamb bar against the mullion was of profile W7. It is proposed that the W7 profile may be replaced by W9 profile.

**WK7 Profile**

**WK9 Profile**





The difference between the two sections is the length of the parallel legs, the W9 being 13mm taller than the W7. In the test 400727A the W9 section was used on the other three sides of the sidelight unit. It is considered that using the W9 section for the sidelight jamb against the mullion will not have a detrimental effect on the fire performance of the assembly.

The use of either W7 or W9 sections as sidelight jamb bars against the mullion is therefore positively assessed and approved for a fire performance of 30 minutes integrity only.

#### Threshold Seal

In both tests, WF 400727A and WF 400728A, Zero Seals Under Door Seals Type 53 were fitted. It is proposed that this seal can be omitted from the construction. These consist of an aluminium extrusion fitted with a neoprene seal strip. The effective gap at the bottom of the door without the seal is 8mm. During a BS476 fire test the pressure at the bottom of the door leaf is approximately -8.5Pa, i.e. drawing air into the furnace. In the observations there was no comment regarding this seal strip. It can therefore be concluded that the omission of the Zero Seals strip would not have a detrimental effect on fire performance. It is therefore positively assessed and approved that the Zero Seals Under Door Seals Type 53 can be omitted from the approved door leaves for a fire performance of 30 minutes integrity only.

#### Certifire Certification

Certifire certification is gained by a third party analysis of previously tested products and constructions and approval against quality procedures and represents a higher level of attestation than simple 'type' testing.

The glass product is approved on the basis of:

- a) Initial type testing
- b) A design appraisal against a Technical Schedule (TS25)
- c) Product surveillance under ISO 9001:2000
- d) Audit testing.

#### Door Closer

In the tests WF 400727A and WF 400728A no door closers were fitted. It is proposed that a Dorma TS83 door closer be fitted to the approved doorsets on the exposed face only. According to Certifire certificate CF118 a Dorma TS83 may be "Fitted to the fire risk face only of Uninsulated steel-based doors and frames only". The fitting of this door closer is therefore approved as detailed in CF118 for a performance of 30 minutes integrity only.

#### Door Handles

In the tests WF 400727A and WF 400728A Steel Window Fittings B850 alloy door handles were fitted. It is proposed that alternative handles may be fitted provided that they are totally metallic handles. Handles on the exposed face are sacrificial. Handles containing non-metallic components fitted to the unexposed face of the assembly have the potential risk of combustion. It is therefore approved that any totally metallic handles may be fitted for a performance of 30 minutes integrity only.

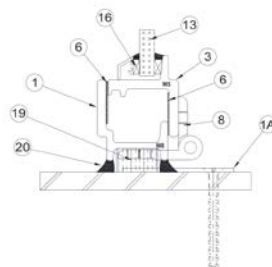
#### Door Latches

In the tests WF 400727A and WF 400728A Eurospec ULS5030 door latches were fitted to the doorsets and achieved a performance of 30 minutes integrity only. The Eurospec ULS5030 latch is listed in Certifire certificate CF611, Carlisle Brass Limited. It is proposed that any of the Eurospec "sashlocks" and "latches" listed in CF611 be approved for used in the W20 doorsets discussed in this assessment. The double tray panels into which the "sashlocks" and "latches" will be fitted is a simple but robust insulated construction for which the variations in proposed "sashlocks" and "latches" will have little influence. It is therefore approved that all the Eurospec "sashlocks" and "latches" listed in CF611 may be used in the W20 doorsets positively assessed in this assessment for a fire performance of 30 minutes integrity only.

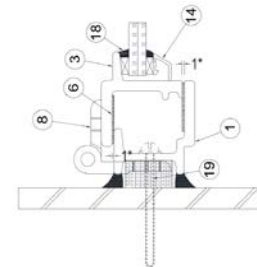
#### Perimeter Fixing

In test WF 400727A the frame was fixed to the supporting structure with 25mm by 3mm steel strip brackets welded to the frame and screwed with 75mm long A2 stainless steel screws at 260mm centres. In test WF 400728A the frame was fixed to the supporting structure with 75mm long A2 stainless steel screws at 260mm centres directly through the frame. See below.

**Welded Bracket as in WF 400727A**



**Through Frame as in WF 400728A**



It is proposed that either method of fixing to the supporting structure is satisfactory for the doorset arrangements discussed in this assessment. Both methods of frame fixing have been commonly tested and are therefore approved for the doorsets discussed in this report for a performance of 30 minutes integrity only.

### Double Tray Panels

In the tests WF 400727A and WF 400728A the latch was assembled into a vertical double tray lock panel between the two intermediate glazing bars at the leading edge of the door leaf. This was manufactured from two 1.6mm thick steel trays screwed in place. It was filled with Rockwool Linear Firestop 110kg/m<sup>3</sup>. See Appendix III. It is proposed that this construction of panel maybe installed in other areas of the door leaves or sidelights, for example as a kick panel at the bottom of the leaf. The introduction of such panels into the door leaf or sidelight will reduce the glazed area and add further stiffness into the construction. The introduction of this design of panel into other areas of the door leaf or sidelight is therefore approved for a performance of 30 minutes integrity only.

### Bespoke Metal Parts

Whilst certain components used in the tests were manufactured by specific companies it is proposed that they can be manufactured by other suppliers if manufactured to the design drawings included in this assessment.

Steel Recessed Bead Stud: Drg. Nos. 74-00188-123 and X9906B12058SX. See Appendix I.

Lock Keep Plates: Drg. Nos. 58 05001 433, 63 00420 300 and 63 00421 300. See Appendix II.

Double Tray Panel: Drg. No. SWA-E30-01 3A. See Appendix III.

Manufacture of these components to the specification of the detail drawings is approved for a performance of 30 minutes integrity only.

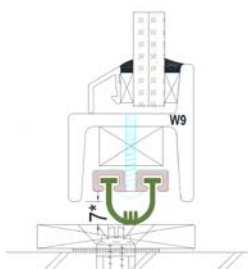
### Top Cap Sealants

In the tests WF 400727A and WF 400728A the glazing tape was capped with a 4mm by 4mm chamfered bead of Soudal Silirub Neutral Cure Silicone. It is proposed that alternative capping materials may be used. Assessment WFRC No. C118420 considers various alternative glass types for inclusion in F Range, W20 and W40 screen framing systems supported by various fire test reports. The appropriate "weathering silicone capping" products used with Pyrodur, Pyrostop, Pyrobel, Pyran S, Firelite and Pyroshield in the supporting test evidence for assessment C118420 may be used as alternatives for a performance of 30 minutes integrity only.

### Bottom Bar of Door Leaf

In the tests WF 400727A and WF 400728A the bottom rail of the door leaves was a W9 section which is a "h" section with the inclusion of a Zero Seals under door seals Type 53. It has already been approved, above, to omit this seal. It is proposed that the W9 section be replaced with a W5 section. In test Warres No. 50437 the door leaf used a W6 section which is similar to W5 other than the glazing leg is on the other side. The doorset in test 50437 with this section W6 achieved a fire performance of 54 minute integrity. It should also be noted that the W5 was used for the perimeter of the door leaf frame in test 400727A and 400728A. See below.

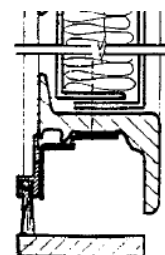
**W9 Profile**



**W5 Profile**



**W6 Profile**



It is therefore approved to use this alternative bottom rail in the door leaf fabrication for a performance of 30 minutes integrity only.

## Door Sizes and Configurations

Following the tests WF 400727A and WF 400728A it is proposed that:

- Single or double doorsets frames may be up to a maximum of 2400mm high
- Single doorset frames may be up to a maximum of 900mm wide
- Double doorset frames may have a combined width of up to a maximum of 1800mm. Double doorsets of unequal width door leaves are not permitted.

The proposed maximum sizes above are those tested in the two tested detailed above and achieved 38 and 42 minutes integrity only. The door leaves must have a minimum of two glazing bars.

The doorset frame sizes above are therefore approved for a fire performance of 30 minutes integrity only.

It is proposed that W20 single and double doorsets may have sidelights on one or both sides. Test 400728A on a double doorset had both hinged edges fixed to the supporting structure. In this configuration the hinged sides of the door leaves are restrained and the meeting edges, other than where latched just below mid-height, are free to deflect. Despite this difference the 42 minute result in this test demonstrates the security of the system when exposed to fire. Test 400727A on a single doorset with sidelight had its hinged edge fixed to the supporting structure and leaf leading edge adjoining the side light. In this configuration the hinged side of the door leaf is restrained and the leading edge, other than where latched just below mid-height, is free to deflect as is the sidelight. Despite this difference the 38 minute result in this test demonstrates the security of the system when exposed to fire. Test 50437 was a single doorset with sidelights on both sides, i.e. hinged edge and leaf leading edge. In this configuration both sides of the single door leaf were free to deflect with the sidelights and the system achieved 54 minutes integrity performance. It is therefore approved to have sidelights on one or both sides of a single or double leaf doorset.

Following the tests WF 400727A and WF 400728A it is proposed that:

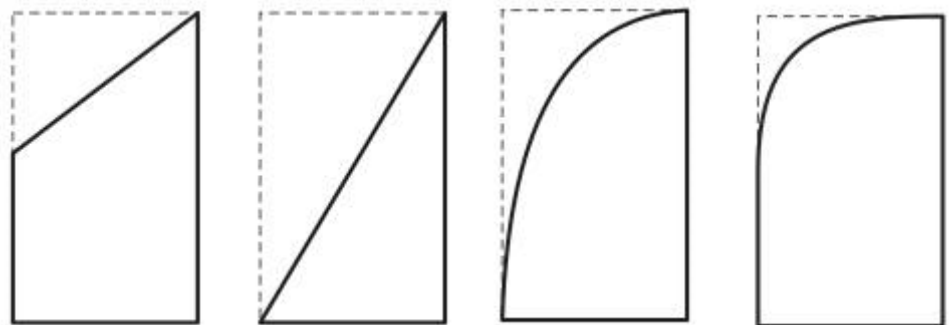
- The combined height of three high glazed sidelight be 2400mm.
- The maximum width of the glass panels in sidelights be that in the door leaf.

The proposed overall height of the side light is that tested and is therefore approved for a performance of 30 minutes integrity only.

Test WF 400727A was of a single leaf door with a sidelight arrangement and WF 400728A was of a double leaf doorset. The width of the glass in the sidelight in test 400427A was 387mm and the width in the door leaf of WF 400728A was 838mm. It is considered that glazing in a door leaf is much more onerous than in the sidelight as it is subject to higher levels of distortion. It is therefore approved that the maximum width of glass in the sidelights be 838mm for a performance of 30 minutes integrity only. The maximum glass height is 767mm as tested.

It is proposed that the upper part of side light arrangements may be shaped to fit the features of a building. This is approved provided the dimensions of the glass panes are no larger than that approved above, i.e. 838mm wide and 767mm high.

### Typical Side Lights Shapes

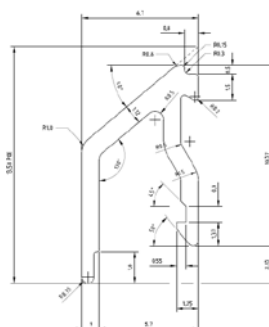


It is proposed that single doorsets may have a transom light as well as side lights. Test 50437 was on a single leaf doorset with side lights and transom light. The system was glazed with 11mm thick Pyrostop and achieved 54 minutes integrity only. The glass used in this test was of a higher performance than the other glasses approved above in this report. A transom light above a single leaf door is approved provided the glass size is no greater than 838mm wide and 767mm high and the overall frame is no greater than the tested height of 2606mm.

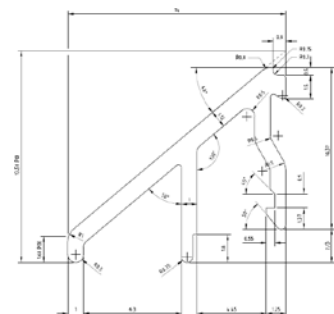
### Alternative Glazing Beads

It is proposed that an alternative profile of aluminium glazing bead be used to that used in the referenced tests, WF 400727A and WF 400728A. In both these tests friction fitted beads, profile 98.12321.500 over steel studs, were used with Sealmaster FGT10x2.5 glazing tape and mounted on the unexposed face.

**Bead Profile 98.12321.500  
 As Tested**



**Bead Profile 98.12324.500  
 Proposed Design**



The proposed profile is 98.12324.500 which identical to that tested with the exception of the addition of the "skirt" on the unexposed side of the bead, see above and Appendix IV. This additional material will have no deleterious effect on the performance of the assessed arrangements and is therefore positively assessed.

## Conclusions

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It is expected that the proposed W20 glazed steel doorsets discussed in this report would achieve a fire resistance performance of 30 minutes integrity performance if subjected to a test in accordance with BS 476: Part 22: 1987.

### Opinion

This assessment represents our opinion as to the performance likely to be demonstrated on tests in accordance with BS 476: Part 22: 1987 on the basis of the evidence referred to below. We express no opinion as to whether that evidence, and/or this assessment, would be regarded by any Building Control authority as sufficient for that or any other purpose. This assessment is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

## Validity

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This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to Warringtonfire the assessment will be unconditionally withdrawn and Crittall Windows Limited will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 4<sup>th</sup> November 2024, after which time it is recommended that it be returned for re-appraisal.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

## Summary of Primary Supporting Data

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### WF 400727A

This test report describes a fire resistance on a W20 uninsulated single-acting single leaf doorset with sidelight tested in accordance with BS 476: Part 22: 1987. The doorset had overall dimensions of 2400 mm high by 1356 mm wide, incorporating a leaf with overall dimensions of 2373 mm high by 874 mm wide. Each panel was glazed with 7mm thick Pyrodur EW30-104. The leading edge of the leaf was adjacent to the sidelight. The frame was fixed to the supporting structure on all four sides. The doorset was installed such that it opened into the furnace and was latched during the test.

#### Test Results:

**Integrity performance** 38 minutes

Test date : 16<sup>th</sup> August 2018

Test sponsor : Crittall Windows Limited

### WF 400728A

Test report WF 400728A describes a fire resistance on a W20 uninsulated single-acting double-leaf doorset tested in accordance with BS 476: Part 22: 1987. The doorset had overall dimensions of 2400 mm high by 1800 mm wide, incorporating a passive leaf with overall dimensions of 2373 mm high by 902 mm wide and an active leaf with overall dimensions of 2373 mm high by 872 mm wide. The leaves comprised a steel framing with two horizontal intermediate glazing bars forming three glazed panels. Each panel was glazed with 7mm thick Pyrodur EW30-104. The doorset was installed such that it opened into the furnace and was latched and the flush bolts engaged during the test.

#### Test Results:

**Integrity performance** 42 minutes

Test date : 17<sup>th</sup> September 2018

Test sponsor : Crittall Windows Limited

### Warres 50437

Test report Warres 50437 describes a fire resistance on a W20 uninsulated single-acting single leaf doorset with sidelights on both sides and a transom light tested in accordance with BS 476: Part 22: 1987. The doorset had overall dimensions of 2606mm high by 3012mm wide, incorporating a leaf with overall dimensions of 2133 mm high by 1000 mm wide. The glass was 11mm thick Pyrostop. The doorset was installed such that it opened away from the furnace and was latched during the test.

**Test Results:**

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**Integrity performance** 58 minutes

**Insulation performance** 14 minutes

Test date : 22<sup>nd</sup> August 1990

Test sponsor : Another company who has given written permission to use the test report for this assessment report.



## Declaration by Crittall Windows Limited

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We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82: 2001.

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which the assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

We are not aware of any information that could adversely affect the conclusions of this assessment.

If we subsequently become aware of any such information we agree to cease using the assessment and ask Warringtonfire to withdraw the assessment.

Signed:

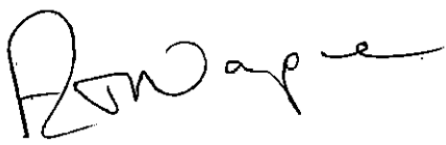
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For and on behalf of:

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## Signatories

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Responsible Officer A. Napier* - Certification Engineer


Approved A. Kearns* - Technical Manager

\* For and on behalf of Warringtonfire

Report Issued: 9 <sup>th</sup> April 2020
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**Issue 2:** Addition of shaped sidelights and transom lights – 24<sup>th</sup> September 2020

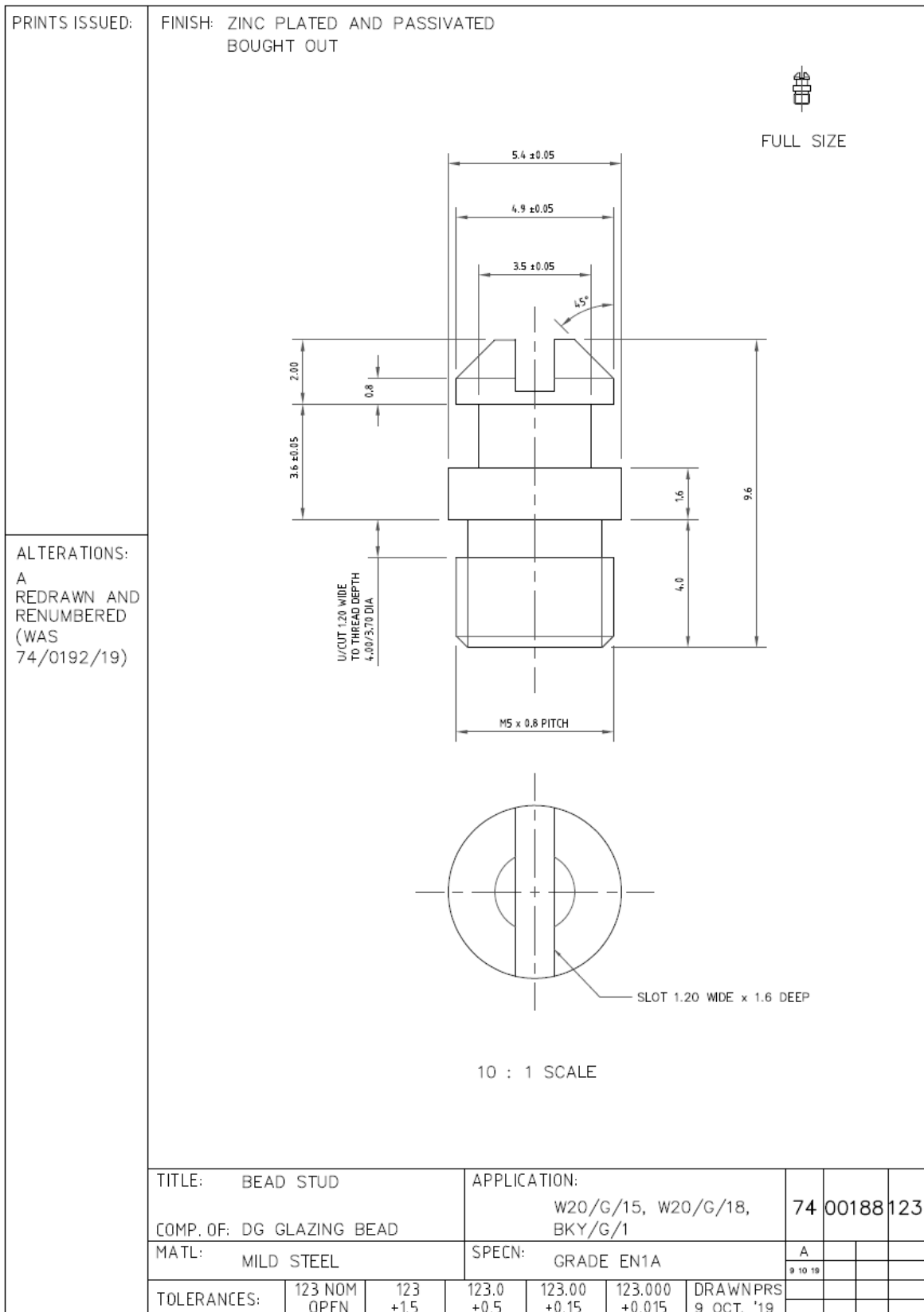
**Issue 3:** Alternative glazing bead profile – 24<sup>th</sup> February 2022

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

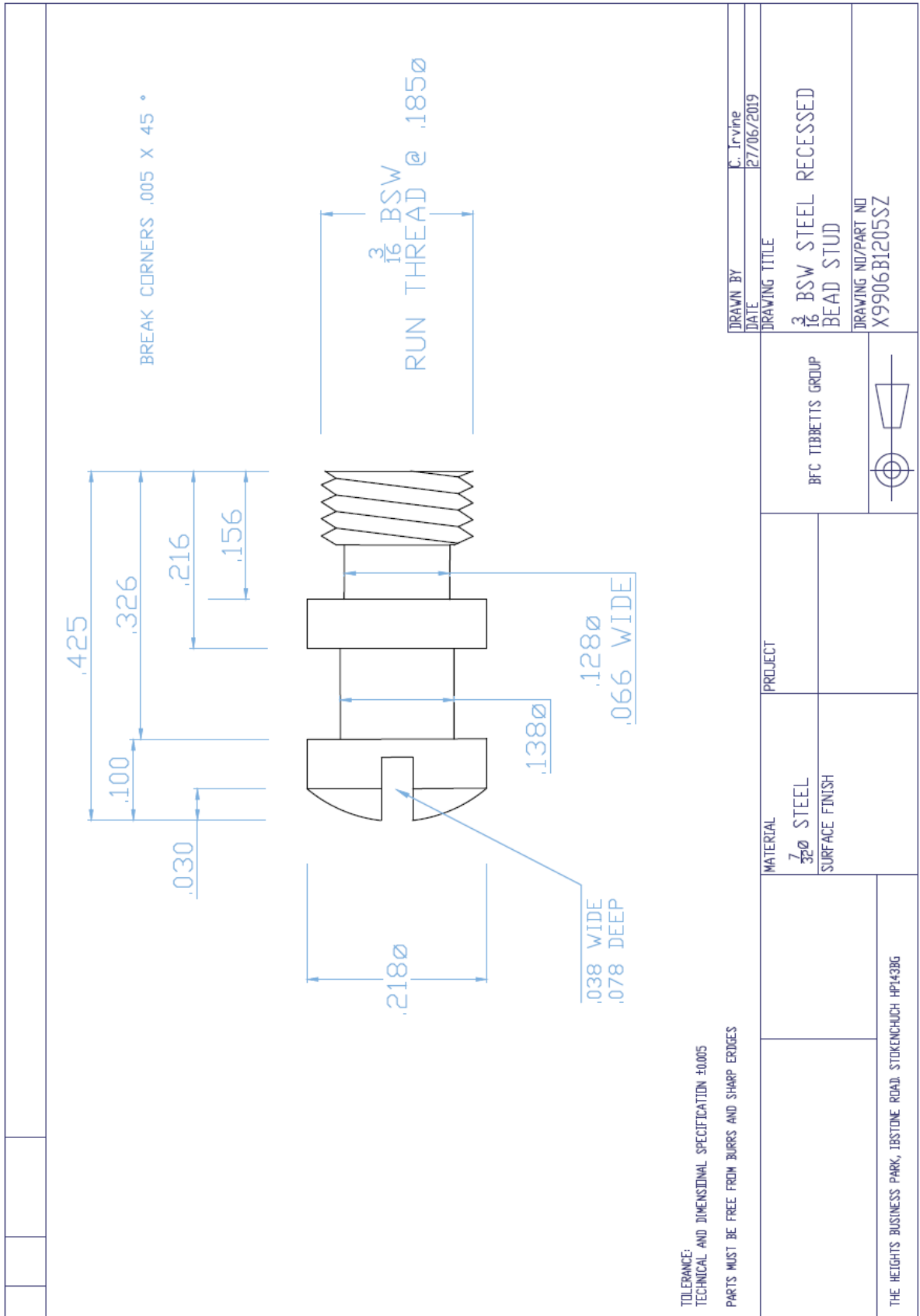
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## Appendix I: Steel Recessed Bead Studs



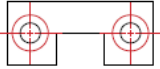
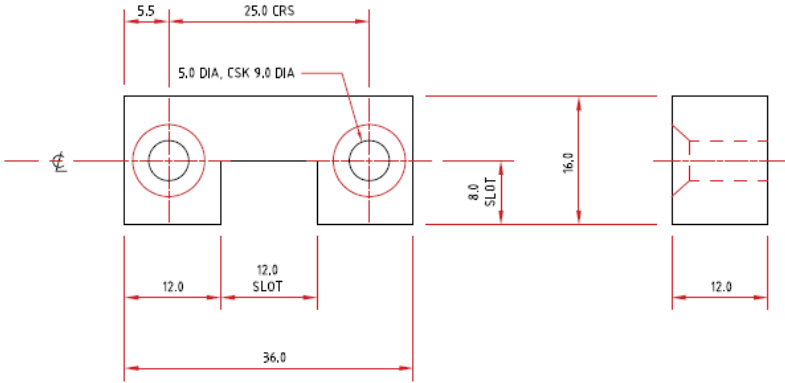
Appendix I cont.



DRAWN BY	C. Irvine
DATE	27/06/2019
DRAWING TITLE	$\frac{3}{16}$ BSW STEEL RECESSED BEAD STUD
DRAWING NO./PART NO	X9906B1205SZ

MATERIAL	PROJECT
$\frac{7}{32}$ STEEL SURFACE FINISH	BFC TIBBETTS GROUP
THE HEIGHTS BUSINESS PARK, IBSTONE ROAD, STOKENCHUCH HP143BG	

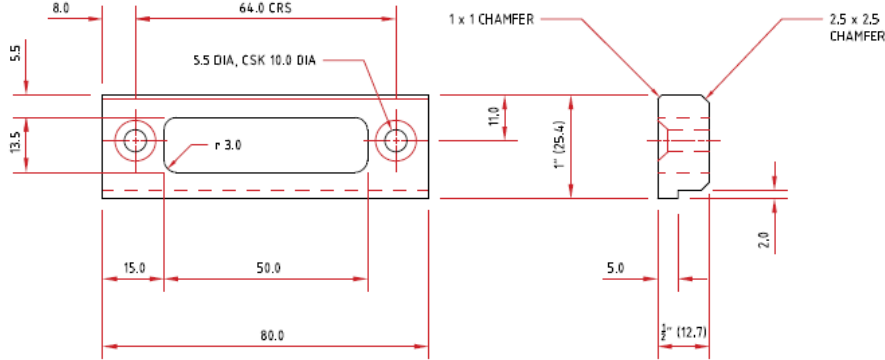
## Appendix II: Lock and Concealed Bolt Keep Plates

PRINTS ISSUED:	FINISH: POLYESTER POWDER COATED   1 : 1 SCALE					
ALTERATIONS:	 2 : 1 SCALE					
TITLE:	KEEP – SWF B85CGFR150 CONCEALED BOLTS		APPLICATION: W20 FIRE DOORS			58 05001433
COMP. OF:	FOLDING DOORS					
MATL:	16 x 12mm BRIGHT MILD STEEL		SPECN: 070M20 OF BS 970 (EN 3B)			
TOLERANCES:	123 NOM OPEN	123 ±1.5	123.0 ±0.5	123.00 ±0.15	123.000 ±0.015	DRAWNPRS 16 JAN. '19

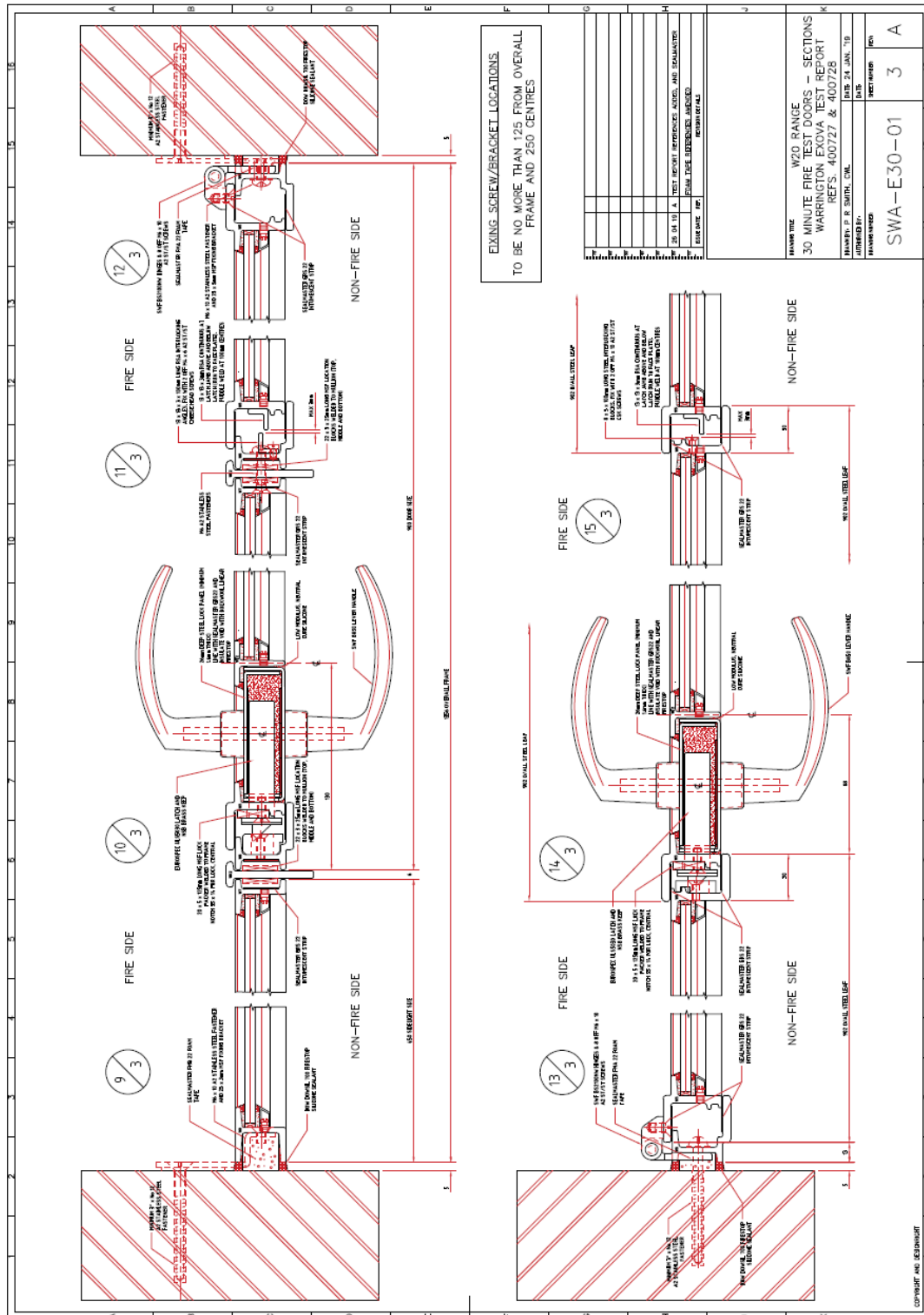
**Appendix II cont.**

PRINTS ISSUED:	FINISH: NATURAL							
ALTERATIONS:								
TITLE:KEEP – EUROSPEC ULS 5030 LATCH	APPLICATION: W20 FIRE DOORS					63	00420	300
COMP. OF: FOLDING DOORS	SPECN: CZ121/CW614N OF BS EN 12164							
MATL: BRASS	123 NOM	123 ±1.5	123.0 ±0.5	123.00 ±0.15	123.000 ±0.015	DRAWN PRS 15 JAN. '19		

Appendix II cont.

PRINTS ISSUED:	FINISH: NATURAL						
ALTERATIONS:	 <p>The drawing shows a side view of a latch assembly. The main body is 80.0 units long and 13.5 units high. It features two circular holes, each with a diameter of 5.5 units and a counter-sink of 10.0 units diameter. The distance between the centers of these holes is 64.0 units. The left hole is 8.0 units from the left edge, and the right hole is 15.0 units from the left edge. The right hole has a radius of 3.0 units. The right end of the assembly has a chamfered edge with a 1x1 chamfer and a 2.5x2.5 chamfer. The total height of the assembly is 11.0 units. The distance from the right edge of the main body to the start of the chamfered section is 5.0 units. The chamfered section has a width of 12.7 units (1/2 inch) and a height of 2.0 units. The chamfered section is 11.0 units high. The chamfered section has a chamfer of 1x1 and a chamfer of 2.5x2.5. The chamfered section has a chamfer of 1x1 and a chamfer of 2.5x2.5.</p>						
TITLE: KEEP – EUROSPEC ULS 5030 LATCH	APPLICATION: W20 FIRE DOORS				63	00421300	
COMP. OF: SIDE HUNG DOORS	SPECN: CZ121/CW614N OF BS EN 12164						
MATL: BRASS	123 NOM	123 ±1.5	123.0 ±0.5	123.00 ±0.15	123.000 ±0.015	DRAWN PRS 16 JAN. '19	
TOLERANCES:	123 NOM	123 ±1.5	123.0 ±0.5	123.00 ±0.15	123.000 ±0.015	DRAWN PRS 16 JAN. '19	

# Appendix III: Drawing Showing Detail of Double Tray Panel





## Appendix IV: Drawing Showing Alternative Beads

