Fire Protection Association®

TECHNICAL ASSESSMENT OF FIRE RESISTANCE PERFORMANCE

REFERENCE NUMBER: FPA 107941 r1

Technical Assessment of Fire Resistance Performance

Report No.:	FPA 107941 r1
Applicant:	SSS Industrial Doors Ltd Red Earth Farm Plantation Road Bolton BL7 0DD
Performance Standard:	BS EN 1634-1:2014+A1:2018 - Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows
Date of Issue:	19/12/2025

Contents

1. Introduction:

This report presents a technical assessment of the expected fire resistance performance of a modified asymmetrical roller shutter doorset, known as Flame Armour & Flame Armour+. The proposed system is a modification to previously successfully fire tested system as tested under Warringtonfire Test Report Reference 552862.

The proposed, detail is as that tested and reported under reference 552862 but modified in various ways as below:

Substrate changes/variations

- Alternative countertop configurations (2 options)
- Alternative countertop materials/type
- Option for installation to 'masonry' and 'standard timber stud supporting' constructions (restricted to 60 minutes for all substrates).
- Option to use 'Softwood', 'Hardwood' or 'Cross-laminated timber (CLT)' studs or battens, within the supporting construction
- Option for the inclusion of insulated and/or uninsulated cavities within the flexible structure
- Option for installation to alternative fire-rated boards, of equal or greater integrity performance
- Alternative floor material using other materials classified as 'A2' in accordance with EN 13501-1

Doorset changes/variations:

- Option for the installation for face fix but closing onto a sill angle
- Option for reversing the fixing angles
- Option for mounting from face fix arrangement to a reveal fix arrangement
- Option for installation to box section packer
- Permitted maximum dimensions as per Extended Application Report No. EUI-25-000555
- Option for installation of a steel 'Hasp and Staple' lock (Locked by 2-inch Fire Brigade padlock)
- Option to supply the 50 mm canopy top lip loose
- Inclusion of the use of 60 minutes fire-rated sealant or mastic, around the perimeter of the doorset.

No further changes to the tested system are proposed.

SSS Industrial Doors Ltd have requested an assessment of the expected fire resistance performance of the doorset, stating that 60 minutes integrity only (i.e. no insulation performance) is required when evaluated against BS EN 1634-1:2014+A1:2018.

The primary data which forms the basis of this assessment was obtained from a test in accordance with BS EN 1634-1:2014+A1:2018 - Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows.

This assessment is based on declared construction details provided by the report sponsor. For full compliance it is recommended that any 'as-built' construction is verified independently.

2. Procedure:

This assessment has been conducted following:

- The guidance outlined in the PFPF 'Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence, 2021
- The principles of EN 15725: 2010

The PFPF Guide defines the complexity of assessments into three categories (Basic, Intermediate and Complex). The FPA have determined the complexity of this assessment to be **Intermediate** based on the following options taken from the PFPF Guide:

> Basic Assessments - The assessment of relatively minor changes to a tested product or system. Such changes shall not be critical to the fire performance of the product or construction being assessed.
>
> Intermediate Assessments - The assessment of intermediate complexity and significant changes to a tested product or system. Such changes may be critical to the fire performance of the product or construction being assessed.
>
> Complex Assessments - The assessment of multiple changes to a group of tested products or systems. Such assessments often rationalise the results of several tests in a wider assessment report to cover ranges of products in different combinations and permutations. Such changes are always fundamental to the fire performance of the product or construction being assessed.

3. Assumptions

Unless otherwise stated, it is assumed that the detailed constructions are the same as and will be installed in a similar manner to those detailed in the test reports referenced in Appendix 1 of this report, by appropriately competent installers.

4. Limits of Applicability

This assessment does not constitute or imply Product Certification of the systems described or referenced. This report shall not be used to demonstrate compliance when third party certification is a requirement for the system being considered.

The conclusions of this assessment relate to the behaviour of the system under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the system in use.

5. Declaration by SSS Industrial Doors Ltd

We the undersigned confirm that we have read and complied with the 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

We confirm that any changes which are the subject of this assessment have not, to our knowledge, been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts, be the subject of a failed fire resistance test to the standard against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.

We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.
(In accordance with the principles of FTSG Resolution 82)

Signature:	
Name:	Mr T. Rawstron, BSc (Hons), QTS, TIFireE
Position:	Technical (R&D) Manager
Company:	SSS Industrial Doors Limited
Date:	15/12/2025

6. Proposals (declared by the assessment sponsor).

The proposed, detail is as that tested and reported under reference 552862/R but modified as stated below and to provide fire resistance performance of 60 minutes integrity as evaluated by testing in accordance with BS EN 1634-1:2014+A1:2018.

Substrate changes/variations:

1. Alternative countertop configurations:
    I. Increased countertop height
    II. Decreased countertop height to FFL
2. Alternative countertop materials/type using other materials classified as A1 in accordance with EN 13501-1.
3. Installation to masonry and timber stud supporting constructions.
4. Option to use 'Softwood', 'Hardwood' or 'Cross-laminated timber (CLT)' studs or battens, within the supporting construction
5. Option for the inclusion of insulated and/or uninsulated cavities within the flexible structure
6. Option for installation to alternative fire-rated boards, of equal or greater integrity performance
7. Alternative floor material using other materials classified as 'A2' in accordance with EN 13501-1

Doorset changes/variations:

8. Installation for face fix but closing onto a sill angle
9. Reversing the fixing angles ('toed out' fixing angles in comparison to 'toed in' fixing angles).
10. Change from face fix to a reveal fix.
11. Installation to box section packer
12. Permitted maximum dimensions as per Extended Application Report No. EUI-25-000555
13. Option for installation of a steel 'Hasp and Staple' lock (Locked by 2-inch Fire Brigade padlock)
14. Option to supply the 50 mm canopy top lip loose

15. Inclusion of the use of 60 minutes fire-rated sealant or mastic, around the perimeter of the doorset.

No further changes to the tested system are considered by this technical assessment.

7. Discussion

The requirement for this technical assessment arises due to concern that the fire resistance protection offered by the roller shutter doorset, as evaluated by integrity in the captioned Test Standard, may be reduced when modified as proposed and therefore this technical assessment considers the implications and provides justification for the proposed changes in specification.

To alleviate any concerns, consideration is made to the following:

Considerations

Option for increased countertop height but restricted to 60 minutes

- An increase in height of the base of the doorset within the test chamber will result an increase in furnace pressure at the countertop. This is due to the pressure gradient which exists within the chamber.
- The expected increase in pressure at the countertop height will possibly result in the passage of hot gases under the sill angle but this type of integrity failure is disregarded during the classification process to classify an integrity only/uninsulated door ('E' classification).
- The increase in pressure may also provide concern if there was a gap was formed at the base of the shutter during the test. This is not evident in the test report referenced 552862 and therefore the likely increase in pressure at the sill position is not a serious concern.

Option for lowering in countertop height to finished floor level (FFL)

- A proposed lowering of the tested sill height will result in a lower pressure within the furnace chamber due to the gradient which exists within the test chamber i.e. the opposite to that considered above,
- To further support the proposal, supplementary tests are offered which included the roller shutter doorset with a sill height at FFL. These tests are referenced Report Nos. 404452 & 429933.
- On the basis that there would be a lower pressure within the furnace and that there is additional test evidence to show the sill at FFL, this proposal is considered acceptable.

Alternative countertop materials/type using other materials classified as A1 in accordance with EN 13501-1

- The countertop material included in the test referenced 552862/R was a stainless steel channel overlaid and fixed down to a gypsum lined, timber stud supporting structure

- The tested system represents a condition which is, in effect, A1 classification and, as such, is not expected to combust due to the heat emitted or transmitted through the doorset at the sill position
- The proposed modification is a like-for-like substitution of one A1 classified material for another A1 classified material
- On this basis there should be no concern for ignition of the sill on the protected side of the shutter assembly

Option for installation to 'masonry' and 'standard timber stud supporting' constructions

- The roller shutter doorset tested under reference 552862/R was installed within a gypsum lined, timber studded, insulated partition wall
- The make-up of the wall was designed to provide 120 minutes integrity
- The proposals involve reducing the anticipated fire resistance (integrity only) period to 60 minutes and to install the wall within a suitably specified wall of gypsum/timber construction or masonry construction.
- During the referenced test there were no recorded failures of the wall to doorset detail throughout the tested period of 120 minutes
- Additionally, further, much larger, roller shutter doorsets were tested under references 404452 & 429933 and mounted in a masonry wall and a timber studded, plasterboard lined wall respectively. These doorsets satisfied integrity for periods significantly over 60 minutes indicating that the proposed modification detail is acceptable.

Use of 'Softwood', 'Hardwood' or 'Cross-laminated timber (CLT)' studs or battens, within the supporting construction

- It is proposed that the previously tested softwood timber studs and battens, which are detailed within Warringtonfire Test Report Nos. 429933 & 552862R, may be substituted for either a hardwood or cross-laminated timber (CLT) alternative.
- As detailed within Warringtonfire Test Report No. 429933, the fire-resistant roller shutter was installed into a flexible supporting construction which consisted of two layers of fire-resistant gypsum plasterboard and softwood (Grade C16) timber frame.
- It should be noted that this substrate design did not include any cavity insulation and achieved 90 minutes of integrity performance in accordance with BS EN 1634-1: 2014 + A1: 2018.
- As detailed within Warringtonfire Test Report No. 552862R, the fire-resistant roller shutter was installed into an associated supporting construction which consisted of fire-rated plasterboard, mineral-wool fiber cavity insulation with a density of 93 kg/m3 and softwood (Grade C16) timber studs and battens.
- This specimen achieved 120 minutes of integrity performance when tested in accordance with EN 1634-1: 2014 + A1: 2018.
- In order to consider the proposed, the standard BS 5268-2: 2002, which is the code of practice for structural use of timber, was used to outline the defined strength grade for each variation of timber.
- A softwood timber with a strength class of C16 would have a mean density (ρmean) of 370 kg/m3, bending strength of 5.3 N/mm2 and a shear strength 1.7 N/mm2. In comparison, a hardwood alternative as proposed, such as an Oak TH1 (Grade D30)

timber would have a mean density (ρmean) of 690 kg/m3, bending strength of 9.6N/mm2 and a shear strength 2.0N/mm2.

- Therefore, it is possible to conclude based upon the relative differences that the proposed hardwood alternative has an increased density, bending and shear strength.
- In regard to fire resistance characteristic of the proposed timber variations, historical test evidence shows that timber doorsets composed of a softwood core leaf construction would typically provide approximately 30 minutes of integrity performance and have a typical charring rate of 0.65 mm/min as per EN 1995-1-2.
- In comparison to hardwood timber core constructions, which are typically used to manufacturer 60 minutes integrity performance doorset assemblies and have a charring rate of 0.50 mm/min as per BS 5268-4: 1990.
- Therefore, considering the reduced charring rate of the proposed hardwood alternative is reduced, and given the increased density, bending and shear strength outlined above, the proposal can be positively appraised. Cross-laminated timber (CLT) is composed of multiple layers of lamellas at 90 degrees, secured with adhesive and lamination.
- The standard BS EN 16351, 'Timber structures: Cross laminated timber. Requirements', must be considered for the proposed use of cross-laminated timber (CLT) studs and battens which is a direct replacement for the tested softwood (Grade C16) timbers detailed within WF Test Report Nos. 429933 & 552862R.
- Using the same grade of timber as per tested specifications, but of an alternative cross-laminated timber (CLT) composition, it is possible to compare the density, bending and shear strength between the two material variations.
- Using the standards BS EN 16351:2021 and BS 5268-2:2022, it is possible to compare the tested softwood timber with a strength class of C16 to the proposed cross-laminated timber (CLT) alternative of the same class (Grade C16). A cross-laminated timber (CLT) with a strength grade of C16 lamellas would have a mean density (ρmean) of 450 kg/m^3, bending strength of 12 N/mm^2 and a shear strength 2.3 N/mm2.
- Therefore, it is possible to conclude based upon the relative differences that the proposed cross-laminated timber (CLT) alternative has an increased density, bending and shear strength.
- As outlined within Eurocode 5 guidance, the defined charring rate for cross-laminated timber (CLT) timber, particularly where the adhesive performance and grade strength is unknown, is stated as 0.80 mm/min.
- However, given that the proposal is for an equal or greater grade of C16 timber, it is possible to determine that no delamination would occur and therefore the charring rate would be equal to a solid C16 softwood at 0.65 mm/min.
- The consideration of the proposed modification is also further reinforced by the inclusion of the requirement of two fire-rated boards, which are installed in situ, directly into the timber frame and are required to provide a minimum fire performance of equal to or greater than the fire-resistant roller shutter, which in this case, is a minimum integrity rating of 60 minutes.
- Therefore, the inclusion of such fire-rated boards would provide sufficient protection to the timber studs and battens for the required period of time.
- With the above in consideration, based upon the comparison of the materials mean densities, bending and shear stresses, it is possible to conclude that if the fire-

resistant roller shutter were to be installed into two layers of fire-rated boarding, which incorporates timber studs and battens of either a softwood, hardwood or cross-laminated timber (CLT) composition, with a minimum graded strength of C16, the proposed would achieve 60 minutes integrity performance if tested in accordance with EN 1634-1: 2014 + A1: 2018.

Option for the inclusion of insulated and/or uninsulated cavities within the flexible structure

- It is proposed that the flexible supporting constructions, as detailed within Warringtonfire Test Report Nos. 429933 & 552862R, may include insulated or uninsulated cavities.
- The fire-resistant roller shutter specimen detailed within Warringtonfire Test Report Nos. 429933 was installed into a timber stud partition which did not include any cavity insulation material between the timber studs and battens.
- The specimen, installed in such a supporting construction, achieved 90 minutes of integrity performance when tested in accordance with EN 1634-1: 2014 + A1: 2018.
- The fire-resistant roller shutter specimen detailed within Warringtonfire Test Report Nos. 552862R was installed into a timber stud partition which included a mineral-wool fiber cavity insulation of Rockwool™ Proprox SL 960 (RWA5) with a density 93 kg/m^3 between the timber studs and battens.
- The specimen, installed in such a supporting construction which incorporated a insulation material, achieved 120 minutes of integrity performance when tested in accordance with EN 1634-1: 2014 + A1: 2018.
- It is therefore possible to conclude that based upon the test evidence provided within Warringtonfire Test Report Nos. 429933 & 552862R, the inclusion of a cavity insulation material of mineral-wool fibre composition, or the omission of such an insulation material, would not have a detrimental effect on the performance of the supporting construction.
- Therefore, if the supporting construction were to be replicated as per the tested design, it is possible to conclude that the specimen would maintain its fire performance for up to 60 minutes of integrity performance.

Option for installation to alternative fire-rated boards, of equal or greater integrity performance.

- It is proposed that alternative fire-rated boards that have an equal or greater integrity performance, which have been shown by direct test evidence to EN 1634-1: 2014 + A1: 2018, can be used as a suitable replacement for the tested 'GTEC Fireboard Gypsum plasterboard', or 'Gyproc FireLine Type F Gypsum plasterboard' as detailed within Warringtonfire Test Report Nos. 429933 & 552862R, respectively.
- The proposed alternative types, such as Magnesium Oxide Board, Cementous Boards, Calcium Silicate Boards or alternative fire-rated Gypsum boards, must be able to provide a minimum of 30 minutes integrity performance for each layer.
- The tested specifications included two layers of fire-rated boards of 15 mm thickness, which were capable of providing an integrity performance of up to 60 minutes.

- Therefore, in order to use an alternative type of fire-rated board as proposed, the proposed boarding must incorporate two layers of equal or greater thickness, be suitable of supporting the weight of the roller shutter and capable of providing 60 minutes integrity performance in accordance with EN 1634-1: 2014 + A1: 2018.
- If these factors are followed the proposed option is acceptable.

Alternative floor material using other materials classified as 'A2' in accordance with EN 13501-1

- It is proposed that the fire-resistant roller shutter may be installed to the finished floor, where the bottom rail closes onto alternative flooring material than previously tested within Warringtonfire Test Report Nos. 404452, 429933 & 552862R, which incorporates other materials which have been classified as 'A2' in accordance with EN 13501-1.
- As detailed within Warringtonfire Test Report No. 404452, the specimen was installed into a masonry supporting construction, the bottom rail of the doorset closed onto a concrete sill which was of a similar composition to the brickwork aperture.
- The doorset achieved 240 minutes of integrity performance when installed within a standard rigid supporting construction.
- This type of cementitious sill would have a Reaction to fire performance classified as Euroclass A1 in accordance with EN 13501-1.
- As detailed within Warringtonfire Test Report Nos. 429933, the specimen was installed into a flexible timber stud partition, where the bottom rail of the doorset assemblies closed onto a plasterboard base of two layers of Siniat GTEC Gypsum Fireboard which had a 15 mm thickness.
- The doorset achieved 90 minutes of integrity performance when installed within a flexible supporting construction.
- The declared Reaction to fire performance of this type of plasterboard, by the manufacturer, is classified as Euroclass A2-s1,d0 in accordance with EN 13501-1.
- With the above consideration, the proposal for alternative floor or sill materials which the bottom rail closes onto would be expected to therefore have a minimum classification of Euroclass A2 in accordance with EN 13501-1.
- The proposed modification would be a like-for-like substitution when compared to the tested plasterboard sill of Warringtonfire Test Report Nos. 429933.
- Therefore, on this basis, the proposal for alternative materials of a similar classification period would not be deemed to compromise the integrity performance of the doorset and it is possible to positively consider alternative floor or sill materials, which have a minimum classification of 'A2' in accordance with EN 13501-1.

Permitted maximum dimensions as per Extended Application Report No. EUI-25-000555

- In order to supply fire-resistant roller shutters which, exceed the tested aperture dimensions of 2500 mm width by 1550 mm height, as per Warringtonfire Test Report No. 552862, the manufacturer must follow the applicable parameters and scope defined within Extended Application Report No. EUI-25-000555.

- The Extended Application Report has been undertaken by Efectis UK/Ireland Limited, which are a UKAS-accredited test laboratory, in accordance with the standard EN 15269-10: 2011.
- This report defines the applicable maximum dimensions based upon the calculations undertaken in accordance with Annex B of EN 15269-10: 2011.
- This Technical Assessment Report (No. FPA107941 r1) provides a variation of scope for the applicable Flame Armour™ product range, for requested modifications, which are outside the standardised rules that are permitted within EN 15269-10: 2011.
- If the fire-resistant roller shutters are manufactured in accordance with Extended Application (EXAP) Report No. EUI-25-000555, incorporating any of the modifications proposed within this assessment report, then it is possible to conclude that the product will be able to provide 60 minutes of integrity performance for the maximum dimensions specified within EXAP report.

Option for installation of a steel 'Hasp and Staple' lock (Locked by 2-inch Fire Brigade padlock)

- The proposed modification is for the inclusion of a heavy duty 'Hasp and Staple' security lock, which is secured to the bottom rail and locked by a 2inch Fire Brigade padlock.
- The proposal is for either the 'staple' or 'Hasp' being directly welded to the bottom 'T' rail, or secured using the appropriate fixings which would not compromise the integrity of the doorset.
- As outlined within the test standard EN 1634-1: 2014 + A1: 2018, if the deformation of the bottom rail is greater than 25 mm and the gap gauge can protrude into the furnace, this would be classified as a failure of the test specimen.
- This type of deformation within the rail is typical due to thermal expansion, and if the proposed modification is applied, it could be argued that the inclusion of such a lock located centrally to the bottom rail would have a positive impact and reduce any deformation occurring during fire conditions.
- In order to provide a positive conclusion for this option, the composition of the proposed 'Hasp and Staple' lock must be of a steel, or stainless-steel and a thickness greater than the bottom rail (e.g. 1.8 mm thickness).

- Option to supply the 50 mm canopy top lip loose

- It is proposed that the 50 mm canopy top lip may be supplied separately from the main canopy body and installed according onsite using steel pop rivets.
- As per Warringtonfire Test Report Nos. 404452, 429933 & 552862R, the canopy is secured directly into the endplates via the three fire cleats position on the endplates using M8 bolts with two steel and one nylon washers.
- The proposed modification is highlighted below in red in Figure 1, the canopy top lip may be supplied loose so that it can installed directly into the canopy via steel pop rivets.

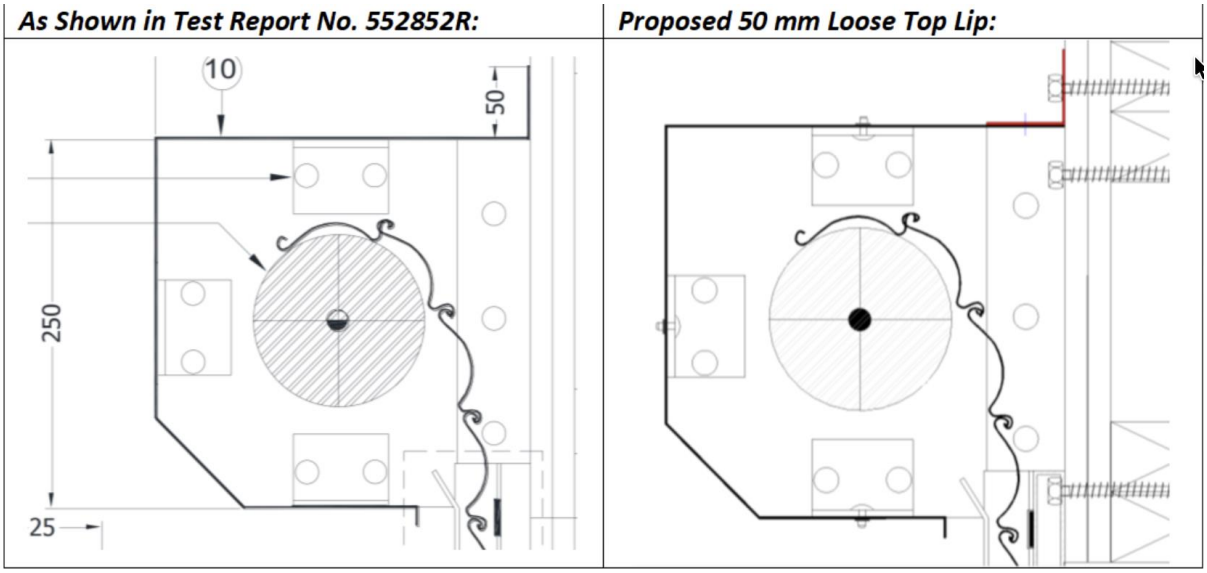

Figure 1

- In certain cases, the canopy top lip cannot be supplied as standard and must be supplied loose and installed in a position which is more central on the endplate, as shown below in Figure 2.

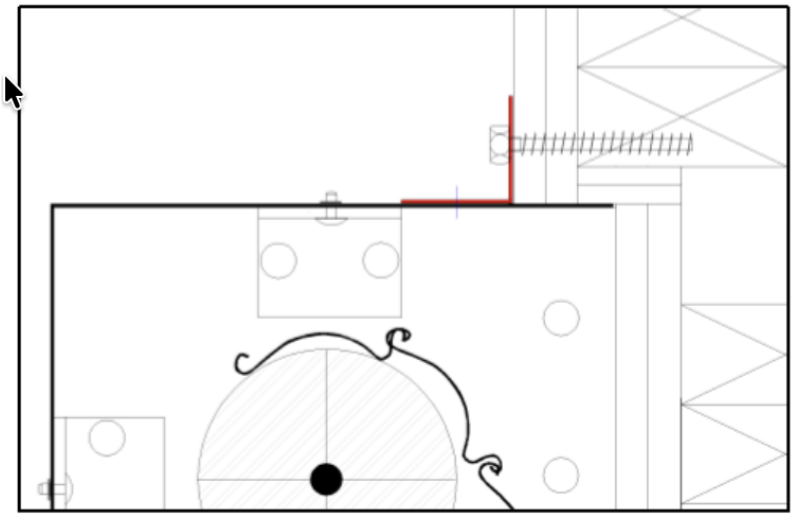

Figure 2

- This is due to the supporting construction being incorrectly specified.
- The proposed modification of supplying the canopy top lip loose, so that it can retrospectively be installed on site to suit the supporting construction, should not have a detrimental impact on the fire performance of the doorset. This is due to the canopy being connected to the endplate directly via the three fire cleats.
- The proposed modification should not impact upon the fire performance of the doorset as the canopy is still being connected directly to the endplate and supporting construction.
- Therefore, it is possible to positively appraise the proposed for 60 minutes integrity performance.

Inclusion of the use of 60 minutes fire-rated sealant or mastic, around the perimeter of the doorset.

- The proposed modification is for the inclusion of fire-rated mastic or sealants, which can provide 60 minutes of integrity performance, to be permitted around the perimeter of the doorset once the fire-resistant roller shutter has been installed.
- This modification aligns with the training provided by The Door and Hardware Federation (DHF) for when an installer installs a fire-rated roller shutter.
- As per technical documentation, DHF TS013-4: 2025, it recommends that if gaps occur around the perimeter of the doorset, that the installer must use appropriate fire-resistant sealant or mastic to ensure that such a gap is suitably filled.
- The acceptance of this proposal is conditional that the sealant is not used to cover any gap which is 5mm or greater.

Option for the installation for face fix but closing onto a steel sill angle, 75 mm x 50 mm x 5 mm

- The tested detail is as shown in the adjacent Figure 3, This was with the shutter curtain closing down onto a countertop (of stainless steel angle fixed onto gypsum boards as mentioned above)
- This detail was successfully tested for a period in excess of 120 minutes and the proposed detail only requires a period of 60 minutes integrity
- The proposed modification is for the bottom rail (T shape) to be fitted such that it closes onto a mild steel sill angle, 75 mm x 50 mm x 5 mm. The concept is shown in Figure 4
- It is important that the sill angle is not allowed to distort in order to prevent a gap forming at the base of the sill between the curtain and the fitted angle. This can be achieved by allowing longitudinal expansion of the angle via slotted fixing holes and with suitable fixings at 200mm maximum centres.
- If the angle is allowed to expand and prevented from distortion the proposed modification would be acceptable for a period of 60 minutes integrity.

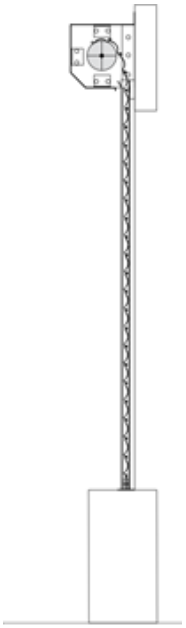

Figure 4

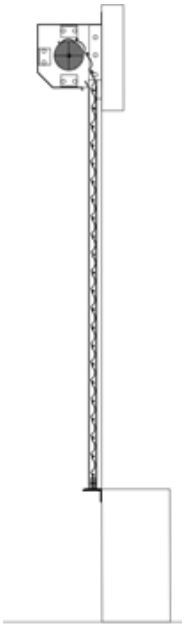

Figure 3

Option for the installation for face fix but closing onto floor level

- It is proposed that the tested detail, as shown above in Figure 3 be modified such that the shutter closes onto a finished floor. The concept is shown in Figure 5
- This type of sill detail was included in the tests referenced 404452 & 429933 which, as mentioned earlier, were doorsets mounted in a masonry wall and a timber studded, plasterboard lined wall respectively and fitted to a concrete finished floor.
- On the basis that this detail has been successfully previously tested, the proposal is acceptable but to further support the proposal it can be considered as a like-for-like detail with that tested in the test referenced 552862/R which was a countertop (Figure 3)

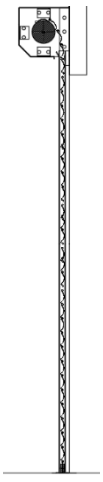

Figure 5

- For all practical purposes, the tested countertop closely resembles the proposed finished floor installation.

Option for reversing the fixing angles

- The proposed options are shown below in Figures 4 and 5 with fixing centres and fixing methods for the angles remaining unchanged between the two details

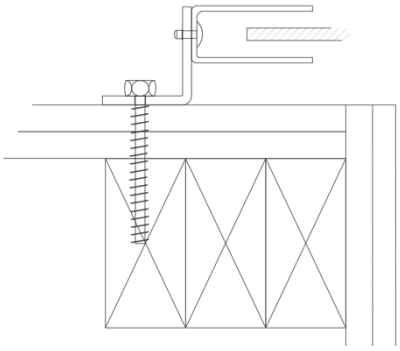

Figure 7 – 'Toed Out'

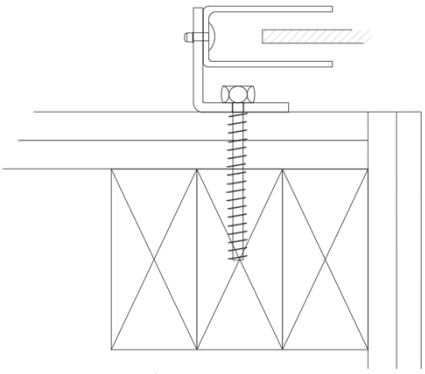

Figure 6 – 'Toed In'

- Test Report No. 552862/R shows that the detail in Figure 6, i.e. 'toed out' fixing angles, can be used to provide integrity performance of in excess of 120 minutes
- Test Reports 404452 & 429933 show that the 'toed in' detail can be successfully tested for periods in excess of 120 minutes without contributing to a failure in this area
- On this basis the details shown in the above, the orientation of the angles can be considered interchangeable

Change from face fix arrangement to a reveal fix arrangement.

- The proposed configurations are shown in Figure 8 and Figure 9 below

- From a restraint perspective and concerning the securing of the doorset within the reveal, the proposed detail presents a similar or perhaps a more robust detail due to

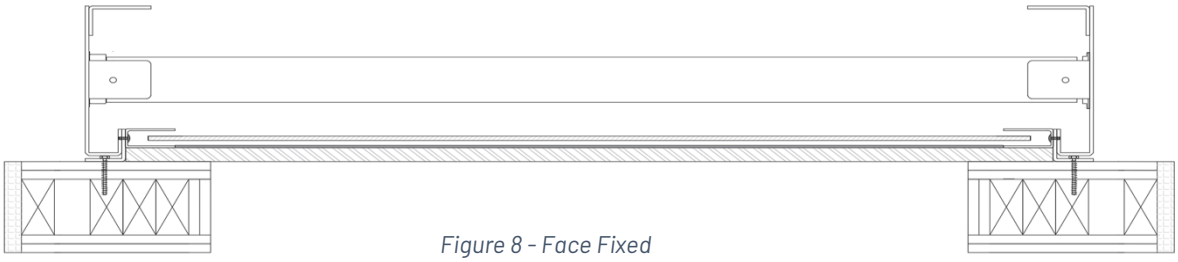

Figure 8 - Face Fixed

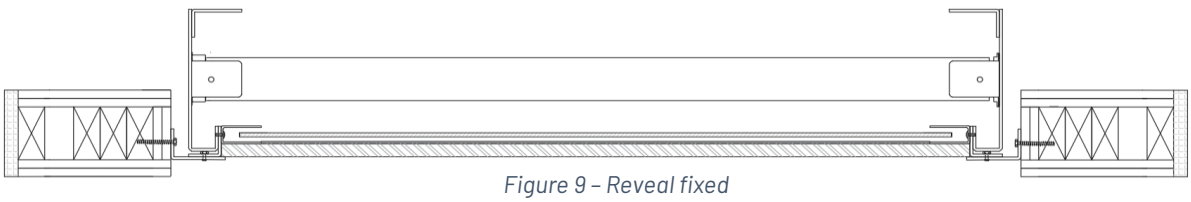

Figure 9 – Reveal fixed

the location of the fixings which are protected to a greater extent than the face fixed configuration.

- The greatest concern therefore, arises due to possible expansion of the doorset which may be restricted in the reveal fixed option and, as a result, may create a gap at the base of the shutter.
- Whilst this can be perceived as a concern, the fixing method will allow the same or similar expansion of the doorset curtain and bottom sill angles. The proposed detail, in Figure 9 indicates that the expected allowance for expansion will be similar or greater than the face fixed detail given the location of the fixing angles and curtain guides
  NOTES:
  Figure 9 detail requires two additional fixings. The shutter is face fixed to the angles which are installed into the reveal of the opening.
  Reveal fix will require a fascia to cover headbox.

Installation to box section packer.

- It is proposed that the tested doorset can be installed directly onto a rectangular box section (SHS) of mild steel. This packer, or 'goalpost frame', would be directly fixed onto the supporting construction using the same fixings as tested within Test Report No. 552862

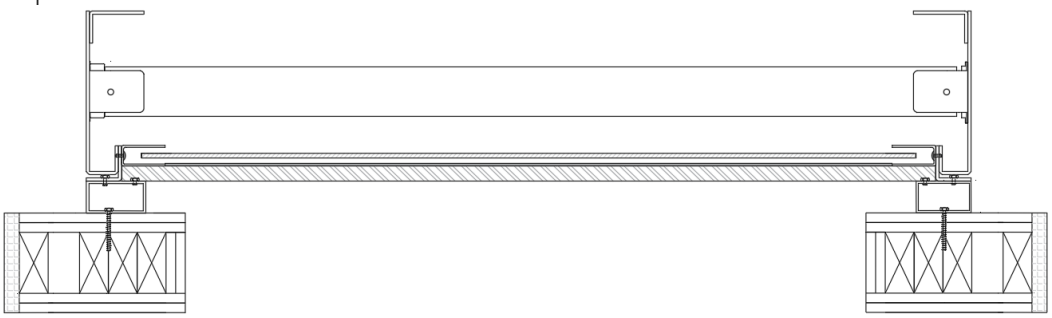

Figure 10 - Box packer installation

- The Extended Application standard EN 15269-10: 2011, permits the installation to 'protected structural steel' as per rule J.2.1. In order to satisfy this rule, the proposed box section must have a sectional factor less than 230m-1, protected by a fire protection system (e.g. fire board, intumescent paint, etc.) and the fixing of the doorset must not reduce the fire performance of the system or steelworks.

  Using 'Promat – The Passive Fire Protection Handbook', Chapter 3 for structural steel, it is possible to calculate the permitted box sections for this type of application and the required fire protection system necessary to ensure compliance with the applicable Extended Application rule.

  Proposed: 120 mm x 60 mm with 5mm thickness has a sectional factor of 215m-1 and would satisfy 'criteria a' of the applicable rule. If this box section were to then be painted with the applicable intumescent fire-resistant paint, it would be possible to conclude it satisfies 'criteria b'. Therefore, the proposed modification would be able to satisfy the requirements of 60 minutes integrity performance in accordance with EN 1634-1.
-

8. Assessment Conclusion

It can be concluded that the roller shutter doorset, when modified as proposed in this report, as a modification to that previously successfully fire tested system as tested under Warringtonfire Test Report Reference 552862/R, would be expected to provide 60 minutes integrity if the modified doorset were to be tested in accordance with BS EN 1634-1:2014+A1:2018 - Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows.

9. Validity

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

This assessment is valid for an initial period of five years after which time it is recommended that it be submitted to the assessing authority for re-evaluation.

This assessment report is not valid unless it incorporates all pages and the declaration duly signed by the applicant's representative.

10. Signatories

REVIEW		
Approval	**Name**	**Date**
Authored by	C. Miles – Consultant to FPA	25/11/2025
Reviewed by	S. Harms – Technical Consultant	19/12/2025
Reviewer's signature	Steve Harms Steve Harms (Dec 19, 2025 11:55:42 GMT)	

This report has been digitally signed using Adobe Acrobat Sign ensuring its authenticity and integrity. If you have any concerns about the document's validity, please contact The Fire Protection Association.

DISTRIBUTION	
Name	**Company**
Thomas Rawstron - Technical (R&D) Manager	SSS Industrial Doors Ltd

REVISION HISTORY		
Revision No.	**Date of Issue**	**Details of Revision**
0	30/09/2025	First issue
1	19/12/2025	Second Issue Inclusion of additional options

11. Annex A – Supporting Evidence

Primary Evidence

Document Reference	Issuing Body	Description
Test Report 552862/R	Warringtonfire	The tested specimen was an asymmetrical roller shutter assembly with overall nominal dimensions of 2840 mm wide by 1900 mm high. The shutter comprised a headbox configuration with an operable motor, steel lath curtain and steel side guides. The headbox was installed on the exposed side. The specimen was installed into an associated flexible supporting construction within an aperture with nominal dimensions of 2500 mm wide and 1593 mm high. The supporting construction comprised of 94 mm deep C16 timber studs, two layers of 15 mm thick Type F EN520 Gyproc Fireline plasterboard were screw fixed either side of the studs and Rockwool Prorox SL 960 was used to insulate the cavities.

Secondary Evidence

Document Reference	Issuing Body	Description
Test Report 404452 Issue 3	Warringtonfire	The tested specimen was an asymmetrical roller shutter assembly comprising of a mild steel barrel supporting a galvanized mild steel lath curtain which was fixed to the exposed face of a masonry wall to cover an aperture with an opening size of 2400mm high by 2500mm wide with the barrel assembly exposed to the heating conditions of the test.
Test Report 429933/R	Warringtonfire	The tested specimen was an asymmetrical roller shutter assembly comprising of a mild steel barrel supporting a galvanized mild steel lath curtain which was fixed to the exposed face of a timber stud, flexible wall to cover an aperture with an opening size of 2400mm high by 2500mm wide with the barrel assembly exposed to the heating conditions of the test.
Report No. EUI-25-000555	Efectis UK/Ireland Ltd	An Extended Application Report for the Flame Armour+ product range based on all applicable test evidence using defined rules within EN 15269-10: 2011.

FPA SERVICES

The Fire Protection Association provides a range of fire safety and prevention services. Our aim is to make the built environment a safer place to live and work so we offer:

Bespoke fire research and testing

RISC 501 – Fire Test and Assessment Method for External Cladding Systems

Technical Assessments of the Fire Resistance Performance of Construction Products

Material analysis testing

Sprinkler head testing

Sprinkler inspection surveys

Fire risk assessments

Compartmentation and fire door inspection surveys

Fire safety training

Membership

UKAS ACCREDITED TESTING SERVICES

BS 8414 cladding testing

BS 8458 watermist system testing

Fire resistance testing

FIRE PROTECTION ASSOCIATION
London Road
Moreton-in-Marsh
Gloucestershire
GL56 0RH

T: 01608 812 500
E: sprinklers@thefpa.co.uk

FPA 107941 r1 - Assessment report - SSS Industrial Doors

Final Audit Report 2025-12-19

Created:	2025-12-15
By:	Steve Harms (sharms@thefpa.co.uk)
Status:	Signed
Transaction ID:	CBJCHBCAABAAWXuG-LJMPq5XgCOskkCglgX0rY7ioUAm

"FPA 107941 r1 - Assessment report - SSS Industrial Doors" History

Document created by Steve Harms (sharms@thefpa.co.uk)
2025-12-15 - 10:42:39 AM GMT

Document emailed to tom@sssindustrialdoors.co.uk for signature
2025-12-15 - 10:45:21 AM GMT

Email viewed by tom@sssindustrialdoors.co.uk
2025-12-15 - 10:46:41 AM GMT

Signer tom@sssindustrialdoors.co.uk entered name at signing as Mr. T. Rawstron
2025-12-15 - 11:40:11 AM GMT

Document e-signed by Mr. T. Rawstron (tom@sssindustrialdoors.co.uk)
Signature Date: 2025-12-15 - 11:40:13 AM GMT - Time Source: server

Document emailed to Steve Harms (sharms@thefpa.co.uk) for signature
2025-12-15 - 11:40:15 AM GMT

Document e-signed by Steve Harms (sharms@thefpa.co.uk)
Signature Date: 2025-12-19 - 11:55:42 AM GMT - Time Source: server

Agreement completed.
2025-12-19 - 11:55:42 AM GMT