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Title:

The Fire Resistance Performance Of Timber Based Doorsets When Fitted With Royde & Tucker Pivot Hardware and Accessories

Report No:

WF No. 112848 Issue 6

Prepared for:

Royde & Tucker Limited

The High Cross Centre
Fountayne Road
London
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United Kingdom

Date:

15th March 2000

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Foreword

This assessment report has been commissioned by **Royde & Tucker Limited** and relates to the fire resistance of pivot hardware and accessories.

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 report uses established empirical methods of extrapolation and experience of fire testing similar locksets, 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: Part 22: 1987.

This assessment has been written using appropriate test evidence generated at a UKAS accredited laboratory to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's products and is summarised within the assessment.

The scope presented in this report relates to the behaviour of the proposed pivot hardware and accessories under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the hardware in use.

This report 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 - 2021'. 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.

Executive Summary

Objective

This report presents an appraisal of the fire resistance performance of timber/mineral-based door assemblies, when fitted with Royde and Tucker pivot hardware and accessories

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Address

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Summary of Conclusions

Should the recommendations given in this report be followed, it can be concluded that single-acting timber/mineral-based doorsets, which have previously been successfully fire tested by a UKAS accredited laboratory or assessed by Warringtonfire, to have achieved up to 60 minutes integrity and insulation performance in accordance with BS 476: Part 22: 1987, as discussed in this report, may be fitted with H131 pivot hardware and accessories, without detracting from the overall achieved performance of the doorset.

The assessment also concludes that previously fire tested timber doorsets constructed using a Halspan tri-layer particleboard door core or alternatively a Moralt 'Lamincore' door blank which have achieved 60 minutes integrity as discussed in this report may be fitted with the various Royde & Tucker pivot assemblies, in accordance with recommendations given in this report, without detracting from the overall performance of the doorset for 60 minutes integrity performances (and insulation where relevant).

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987, based on the evidence referred to herein. 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

7th February 2028

Introduction

This report presents an appraisal of the fire resistance performance of previously tested (or assessed by Warringtonfire) fully insulated, single-acting, timber or mineral- based doorsets when fitted with Royde & Tuckers pivot hardware and accessories.

The doorsets onto which the pivot hardware and accessories are to be fitted may be of single-leaf or double-leaf configurations.

The proposed timber/mineral- based doorsets are required to provide a fire resistance performance up to 60 minutes integrity, with respect to BS 476: Part 22: 1987.

For the pivot hardware and accessories when used in 60 minute applications, the appraisal is specific to doorsets constructed using a Halspan tri-layer particleboard door core or alternatively a Moralt 'Lamincore' door blank and attention should be made to the specific requirements for the use of the hardware with those different constructions.

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 Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence - 2021.

Assumptions

EN1634-1

EN1634-1 was issued originally in 2000, with amended versions issued in 2008, 2014 and 2018. The differences between each version are mainly procedural and are not considered to have a practical impact on the performance of the samples under test. On this basis this evaluation is consider applicable to all versions of EN1634-1 issued prior to the issue of this assessment.

Supporting wall

It is also assumed that the construction of the wall, which supports the proposed doorsets, will have been the subject of a separate test and the performance of the wall is such that it will not influence the performance of the doorset for the required period.

Doorset Specification

It is assumed that the pivot hardware and accessories will be fitted to a doorset which has also been previously shown to be capable of providing the required fire resistance performance when tested in accordance with BS 476: Part 22: 1987 in the proposed configuration i.e. single-leaf or double-leaf.

It is also assumed that the doorsets will fully comply with any certification scope or assessed modifications, apart from the modifications specified in this report.

Clearance gaps

Door leaf to frame clearance gaps can have a significant effect on the overall fire performance of a doorset. It is therefore assumed that the leaf to leaf and leaf to frame clearance gaps will not exceed those measured for the relevant fire tested doorset. In addition, it is assumed that the door leaves will be in the closed position.

Installation

It is assumed that the doorsets will be installed in a similar manner to that of the previously tested assembly by competent installers.

Recessing of any type that may be required for any of the specified hardware shall result in a tight fit, allowing for any intumescent protection where required.

Hardware Variant Specifications

An appraisal of the hardware variants detailed in this report is based upon product information supplied by the hardware manufacturer, which is retained in the confidential file relating to this report. Warringtonfire have not inspected the devices being appraised and cannot be held responsible for the accuracy of the information provided.

Proposals

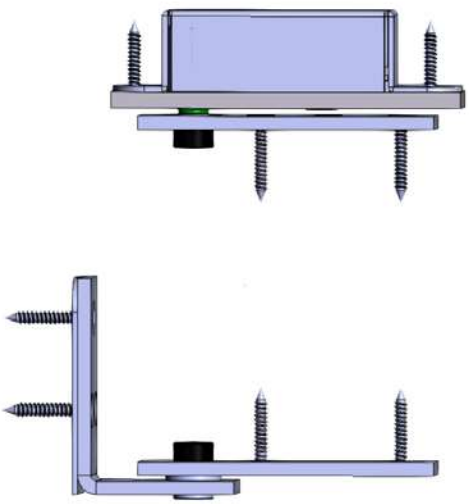
It is proposed that previously fire tested (or assessed Warringtonfire) timber doorsets which have achieved 60 minutes integrity and, where applicable, insulation performance, as discussed in this report, may be fitted with the pivot hardware and accessories, in accordance with recommendations given in this report, without detracting from the overall performance of the doorset.

In addition when the pivot hardware and accessories are used in 60 minute applications, the appraisal is specific to doorsets constructed using a Halspan tri-layer particleboard door core or alternatively a Moralt 'Lamincore' door blank and attention should be made to the specific requirements for the use of the hardware with those different constructions.

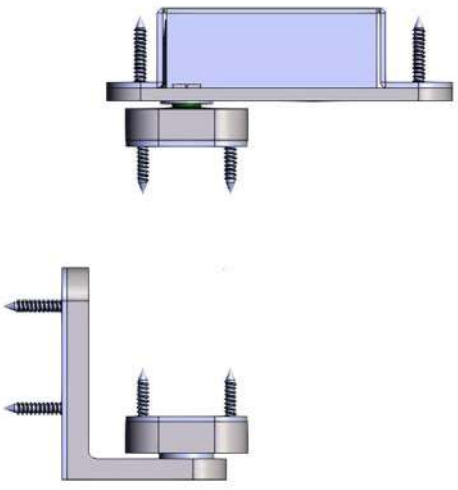
It is proposed that the doorsets may be of single or double-leaf, single/double-acting configurations.

The report considers the following pivot hardware and accessories:

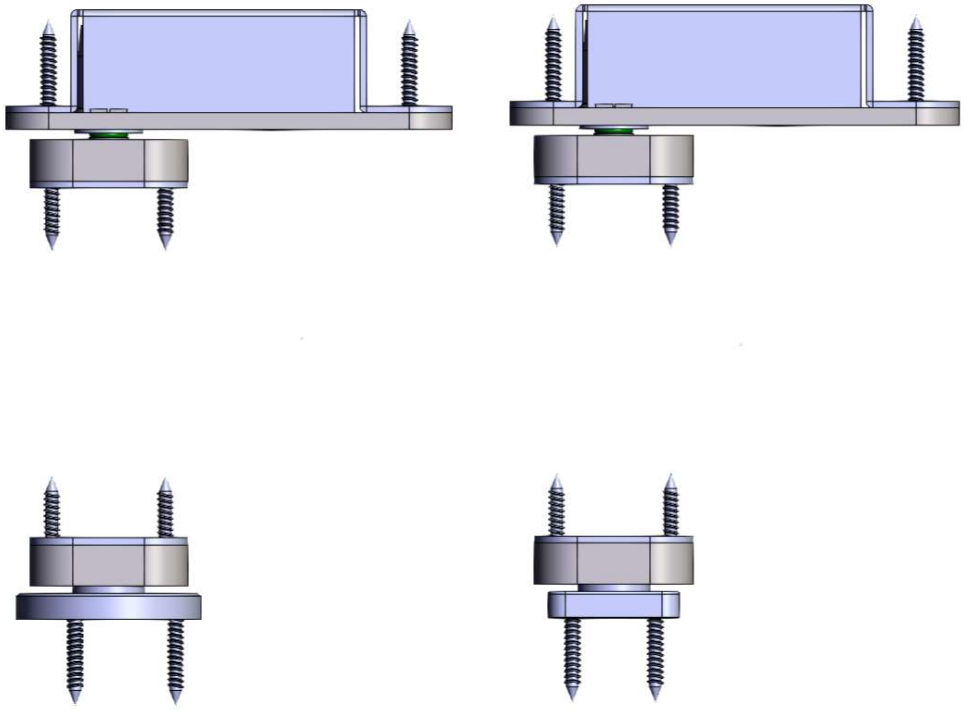
H131-100



H131-400



H131-401 **H131-402**



All of the top parts of the pivots that are recessed into the frame have the same dimensions, material (mainly stainless steel) and require the same amount of material to be removed, with the differences being in the accessories with the variance being determined by door function.

H131-P44 pivot protectors

The pivot protectors require no amount of additional material to be removed from the leaf and are manufactured from stainless steel. They have the option to be fitted to the head and base of the door leaf.

Basic Test Evidence

CFR1009301

The test report referenced CFR1009301 and described briefly in the supporting data section of this report, relates to the fire performance of one double-acting single leaf doorset and one single-acting double leaf doorset, both doorsets incorporating various items of hardware and were tested in accordance with BS EN 1634-1:2008.

Doorset A, a 30 minute timber-based double-acting, single leaf doorset which was latched and incorporated Royde & Tucker H131-400 door pivots and H131-P44 pivot protectors.

Doorset B, a 30 minute timber-based single acting, double leaf doorset which was latched and incorporated various items of door hardware.

The test demonstrated the ability of the doorsets to provide 50 minutes (Doorset A) and 41 minutes (Doorset B) integrity performance.

Chilt/RF96062

The test report referenced RF96062 and described briefly in the supporting data section of this report, relates to the fire performance of one double-scting, double leaf timber doorset incorporating various items of hardware and was tested in accordance with BS 476:Part 22:1987.

The doorset, a 60 minutes timber based double-acting, double leaf doorset which was unlatched and incorporated a floor spring, top pivot and bottom strap.

The test demonstrated the ability of the doorsets to provide 64 minutes integrity performance.

Chilt/RF07055

The test report referenced RF07055 and described briefly in the sporting data section of this report, relates to the fire performance of one double-scting, double leaf timber doorset incorporating various items of hardware and was tested in accordance with BS 476:Part 22:1987.

The doorset, a 60 minutes timber based timber based double-acting, double leaf doorset which was unlatched and incorporated a floor spring, top pivot and bottom strap.

The test demonstrated the ability of the doorsets to provide 61 minutes integrity performance.

Test report review

The original test reports used in support of this assessment have been reviewed and it has been concluded that the test data remains acceptable and the final result would be unchanged on the following basis:

- A comparison of the test procedures and performance criteria with the current standard has identified that any variations would have no detrimental impact on the performance of the doorset and hardware under test
- The client has confirmed that there has been no change to the design or material specification of the hardware tested originally, consequently.
- The reports are available in their entirety, the products are adequately

referenced and linked to the products being considered for assessment, and the ownership of the test data has been confirmed as the assessment report holder.

- Where the test data is not the property of assessment report sponsor the original test sponsor has confirmed that this test data may still be used in support of this revalidation.

Assessed Performance

Manufacturing location

The products have not been identified at being produced at a manufacturing plant.

Pivot Hardware and Accessories

30 minute applications

The proposal requires H131-100 or H131-400, 401 or 402 pivot hinges to be fitted to previously fire tested (or assessed by Warringtonfire) timber doorsets.

To enable the use of the proposed hinges on other doorsets it is necessary to address the available information on the proposed doorset. As this appraisal is intended to be used on a general basis and not restricted to any particular manufacturer of fire doors, the following points are given to enable the pivot hinges to be used safely:

The timber doorset, including door frame, intumescent seals and associated ironmongery should have achieved 30 minutes integrity and, where applicable, insulation when tested by a UKAS approved laboratory (or assessed by Warringtonfire) to BS 476: Part 22: 1987.

If the proposed doorset is to be used in double-leaf configuration the test or assessment evidence should be applicable to double-leaf configurations.

The critical aspects of the doorset construction are considered to be the material of the door frame, the leaf to frame clearance gaps and the lipping material. Attention should be paid to these details and these should not be amended from that previously fire tested. Where this information is not known the following minimum specification will be followed:

a) Door frame density - 460 kg/m³,
b) Leaf to frame clearance gaps not to exceed 2.5 mm average and 3 mm maximum,
c) Lipping density - 460 kg/m³.

The critical factor when changing from one item of ironmongery to another is the size of the alternative item. A larger item may require more timber material to be removed from the leaf and therefore may provide an easier route for the passage of flames and/or hot gases leading to premature integrity failure.

Additionally, the amount of interruption to the intumescent seal specification at the door leaf to frame perimeter clearance gaps should be replicated or reduced from that originally specified for the tested doorset.

30 minute Test Evidence

A H131-400 door pivot with a H131-P44 Pivot protector was incorporated on the left doorset within the test report No. CFR1009301. Upon review of the test report it can be seen that there were no modes of integrity failure, which were

either attributable to or co-incident with the performance or presence of the door pivot, for the full test duration. It is therefore considered that the door pivot performed effectively during the test and positively contributed to the 50 minutes performance achieved.

H131 pivot hinges

Since the doorset to which the proposed H131 pivot hinges are to be fitted will have been tested in a double-acting configuration and thus will have included a floor spring and top pivot, the substitution of these items with the proposed pivots would be expected to reduce the required amount of timber removal from the leaf head and threshold.

The proposed doorsets, although originally tested in a double-acting configuration, will be single-acting and will require a surface mounted overhead door closer to be fitted in order to effect sufficient retention of the door leaf and to close the door overcoming any latch mechanism as fitted.

In the absence of any test evidence, the door closer which will be used in conjunction with the H131 pivot hinges shall be CERTIFIRE approved for the relevant period for timber based doorsets.

H131-400 double-acting pivot set

It is further proposed that the double acting pivot model H131-400 shall also be fitted within double-acting doorsets. This unit is essentially the same as that discussed above with the exception that the bottom hinge plate is replaced with a Pivot Bracket angle set into the frame. The door plate has also been replaced.

The Bottom Pivot Bracket shall be bedded onto 1 mm thick Interdens to supplement the interruption of intumescent seals within the frame.

An alternative adjustable pivot is also proposed for the H131-400 unit. This shall replace the 2 No. Door Plates. This element will result in an increase of door core material requiring to be removed as compared to the standard Door Plates. Therefore, the pivot will be required to be wrapped in 1 mm thick Interdens to all internal faces in order to maintain the 30 minutes integrity performance required.

H131-401 & 402 double-acting pivot set

It is further proposed that the double acting pivot models H131-401 & 402 shall also be fitted within double-acting doorsets. The unit is essentially the same as that discussed above with the exception that the bottom hinge plate is secured into the floor rather than the frame.

The Bottom Pivot Bracket shall be bedded onto 1 mm thick Interdens to supplement the interruption of intumescent seals within the frame.

The modification would require less material to be removed from the door frame when compared to the H131-400 model, therefore, the pivot will be required to be wrapped in 1 mm thick Interdens to all internal faces in order to maintain the 30 minutes integrity performance required.

H131-P44 pivot protector

The proposed pivot protector will be fitted in conjunction with the H131-400, 401 & 402 double action pivot sets. The pivot protector comprises two stainless steel folded plates with a fully welded seam which fit over the top and bottom corners of the door leaf hanging stile. The protectors are retained via three, stainless steel countersunk woodscrews fixed on each face of the door leaf.

The test report referenced CFR1009301 is cited as evidence of the suitability of the pivot protectors, when fitted in conjunction with the H131-400 pivot set.

The tested doorset assembly was of a double-acting, single-leaf configuration comprising a Pine softwood timber frame and a door leaf of 44 mm thick Halspan 'Prima' core tri-layer particleboard with hardwood timber lippings to all four edges.

The H131-400 pivot set was provided with the requisite intumescent protection detailed earlier in this report. The pivot protectors fitted to the head and based of the door leaf hanging stile were provided with a 1 mm thick layer of Interdens sheet intumescent fitted to the horizontal face and the vertical face at the heel between the leaf and the pivot protector.

The test continued for a period of 50 minutes without an instance of integrity failure, and until the test was discontinued after 51 minutes without any instance of integrity failure either directly relating to, or as a consequence of the presence or performance of the H131-400 pivot set or the H131-P44 pivot protectors.

It can therefore be concluded that the H131-P44 pivot protectors may be confidently fitted in conjunction with the H131-400 double action pivot set, subject to the inclusion of the previously detailed intumescent protection described for each item.

The tested doorset included hardwood timber lippings to all four edges, is shall therefore be a requirement of this appraisal that any door leaf to which the H131-P44 pivot protectors are fitted shall also include hardwood lippings to all four edges and that these lippings shall have a minimum thickness of 8 mm and a minimum density of 640 kg/m^3.

Subject to the observation of these requirements, the use of the H131-P44 pivot protectors, when fitted in conjunction with the H131-400, 401 & 402 double-action pivot set, is positively appraised with timber doorsets which have previously achieved 30 minutes integrity performances.

60 minute applications – Halspan doorset

The proposal requires H131-100 or H131-400, 401 or 402 pivot hinges and accessories to be fitted to previously fire tested (or assessed by Warringtonfire) timber doorsets using Halspan tri-layer particleboard door cores.

To enable the use of the proposed hardware on a range of doorsets constructed using Halspan tri-layer particleboard cores it is necessary to address the available information on the proposed doorset. As this appraisal is intended to be used on a general basis and not restricted to any particular manufacturer of fire doors using Halspan tri-layer particleboard cores, the following points are given to enable the hardware to be used safely:

The timber doorset, including door frame, intumescent seals and associated ironmongery should have achieved 60 minutes integrity and, where applicable, insulation when tested by a UKAS approved laboratory (or assessed Warringtonfire) to BS 476: Part 22: 1987.

If the proposed doorset is to be used in double-leaf configuration the test or assessment evidence should be applicable to double-leaf configurations.

The critical aspects of the doorset construction are considered to be the material of the door and door frame, the leaf to frame clearance gaps, the lipping material and the standard intumescent specification of the doorset. Attention should be paid to these details and these should not be amended from that previously fire tested. The following minimum specification will be followed:

a) The door leaf construction shall be formed from a Halspan tri-layer particleboard core (Prima or Optima) having a minimum core thickness of 42 mm and minimum overall thickness of 54 mm.

b) Door frame shall be hardwood with a minimum density of 650 kg/m³.

c) Leaf to frame clearance gaps not to exceed 3.5 mm average and 4.5 mm maximum.

d) Door leaves shall be lipped to all four edges with 8 mm thick hardwood lipping density having a minimum density of 650 kg/m³.

e) The standard intumescent specification of the doorset shall comprise:

- 2no. 15 x 4 mm seals to the door frame head and jambs spaced 10 mm apart and centrally fitted
- 2no. 15 x 4 mm seals to one door leaf meeting edge for double leaf doorsets

1no. 15 x 4 mm seal centrally fitted to the door leaf bottom edge

The individual pivot assemblies proposed are: H131-100, H131-400, H131-401 and H131-402

Assessment of the performance of the pivot sets is made by comparison of their individual components with those of floor spring closers fitted to a previously, successfully tested Halspan doorset construction.

The fire resistance test report referenced as Chilt/RF96062 is cited in support of this appraisal and details a fire resistance test conducted in accordance with BS 476: Part 22: 1987 on a specimen of double-acting, double-leaf timber based doorset.

The doorset briefly comprised two Halspan particleboard cored door leaves each having nominal overall dimensions of 2040 mm high by 825 mm wide and 54 mm thick mounted within a hardwood timber door frame. The door leaves comprised a core of Halspan particleboard, 42 mm thick, faced on either side with 6 mm thick MDF and lipped to all four edges with hardwood timber, 10 mm thick.

The door leaves were supported on double action floor spring closers complete with double action mounting accessories comprising top pivot and strap and

bottom strap.

The doorset achieved integrity and insulation performances of 64 minutes.

The critical factor when changing from one item of ironmongery to another is the size of the alternative item. A larger item may require more timber material to be removed from the leaf and therefore may provide an easier route for the passage of flames and/or hot gases leading to premature integrity failure.

Additionally, the amount of interruption to the intumescent seal specification at the door leaf to frame perimeter clearance gaps should be replicated or reduced from that originally specified for the tested doorset.

Top components

All components are formed from either stainless steel strip or are cast stainless steel. All sets utilise the same frame mounted top part, differing only in square or radius edges for the two ranges respectively. The footprint of the top part of the proposed pivot sets has nominal dimensions of 25 mm wide by 130 mm long and 5 mm thick which compares favourably to the dimensions of the top centre frame portion originally tested which had footprint dimensions of 25 mm wide by 165 mm long by 6 mm thick.

Similarly, the door portion of the top centre tested had dimensions of 29 mm wide by 122 mm long by 15 mm deep. The comparable component of the H131-100 pivot sets is the door plate which has dimensions of 25 mm wide by 110 mm long and 5 mm thick. For the H131-400, 401 & 402 pivot sets the door plate is a cast steel component having dimensions of 25 mm wide by 46 mm long and 12 mm deep.

It can therefore be determined that the components fitted to the top part of the door and frame are generally smaller and have no dimensions greater than those of the tested components and therefore will require less removal of door leaf and frame material and less interruption to the intumescent seal specification at the door leaf to frame perimeter.

Further review of the tested specification shows that intumescent protection in the form of 2 mm thick graphite based intumescent sheet material was fitted around the pivot components fitted to both the door leaf and frame. Therefore is shall be a condition of this assessment that the same level and type of intumescent protection is provided to the proposed hardware. The intumescent material included in the original test is not referenced in the test report. Based on test experience, 'THERM-A-FLEX' graphite intumescent sheet material shall be required to be fitted.

Bottom components

Both ranges have identical door plates for top and bottom mounting to the door leaf. The bottom strap of the tested floor spring assembly had nominal dimensions of 24 mm wide by 235 mm long. Comparison of the door plates to the strap shows that the proposed components are negligibly wider at 25 mm but are much shorter, at 110 mm and 46 mm long, and therefore require much less removal of door material for their installation.

Where the original assembly was mounted on a floor spring closer mounted within a recess in the floor below the doorset, the proposed pivot sets are either mounted on a frame/floor mounted 'L' bracket partially recessed into the door frame (H131-100, H131-400) or a floor mounted pivot plate (H131-401 & 402).

The tested assembly included intumescent protection in the form of 2 mm thick graphite based intumescent sheet material was fitted around the bottom strap, therefore, it shall be a condition of this assessment that the same level and type of intumescent protection is provided to the door plates of the proposed hardware.

The floor mounted support plates can be considered as a comparable condition to the original tested assembly and therefore no additional intumescent protection is required to these components. For those models where an 'L' bracket support is used, the brackets shall be provided with a bedding of 2 mm thick intumescent sheet material of the same type as discussed for the other components. This intumescent bedding shall be provided between the contact faces of the bracket and the door frame.

60 minute applications – Moralt doorset

The proposal requires H131-100 or H131-400, 401 or 402 pivot hinges and accessories to be fitted to previously fire tested (or assessed by Warringtonfire) timber doorsets constructed using a Moralt 'Lamincore' door blank.

To enable the use of the proposed hardware on a range of doorsets constructed using a Moralt 'Lamincore' door blank, it is necessary to address the available information on the proposed doorset. As this appraisal is intended to be used on a general basis and not restricted to any particular manufacturer of fire doors using the Moralt 'Lamincore' door blank, the following points are given to enable the hardware to be used safely:

The timber doorset, including door frame, intumescent seals and associated ironmongery should have achieved 60 minutes integrity and, where applicable, insulation when tested by a UKAS approved laboratory (or assessed by Warringtonfire) to BS 476: Part 22: 1987.

If the proposed doorset is to be used in double-leaf configuration the test or assessment evidence should be applicable to double-leaf configurations.

The critical aspects of the doorset construction are considered to be the material of the door and door frame, the leaf to frame clearance gaps, the lipping material and the standard intumescent specification of the doorset. Attention should be paid to these details, and these should not be amended from that previously fire tested. The following minimum specification will be followed:

a) The door leaf construction shall be formed from a Moralt 'Lamincore' door blank overall minimum thickness of 54 mm and a 'Laminboard rail insert within the head of the door leaf nominally 30 mm high by 25 mm wide.

b) Door frame shall be hardwood with a minimum density of 640 kg/m³.

c) Leaf to frame clearance gaps not to exceed 3.5 mm average and 4 mm maximum.

d) Door leaves shall be lipped to top, bottom and leading edges with 9 mm thick hardwood lipping, hanging edge shall be lipped with 15 mm thick radiused to minimum 10 mm. All lippings shall having a minimum density of 650 kg/m³.

e) The standard intumescent specification of the doorset shall comprise:

- 2no. 15 x 4 mm seals to the door leaf hanging edge spaced 8.5 mm apart and centrally fitted.
- 2no. 15 x 4 mm seals to one door leaf meeting edge for double leaf doorsets, spaced 10 mm apart and centrally fitted.
- 1no. 40 x 6 mm seal centrally fitted to the head of the door frame.

The individual pivot assemblies proposed are: H131-100, H131-400, H131-401 and H131-402

Assessment of the performance of the pivot sets is made by comparison of their individual components with those of floor spring closers fitted to a previously, successfully tested Moralt doorset construction.

The fire resistance test report referenced as Chilt/RF07055 is cited in support of this appraisal and details a fire resistance test conducted in accordance with BS 476: Part 22: 1987 on a specimen of double-acting, double-leaf timber based doorset.

The doorset briefly comprised two Spruce ply veneer cored door leaves each having nominal overall dimensions of 2600 mm high by 950 mm wide and 55 mm thick mounted within a hardwood timber door frame. The door leaves comprised a core of Moralt Spruce ply veneer, 47 mm thick, faced on either side with 4 mm thick particleboard with a rail insert of 'Laminboard' nominally 30 mm high by 25 mm thick within the head of each door leaf and lipped to all four edges with hardwood timber.

The door leaves were supported on double action floor spring closers complete with double action mounting accessories comprising top pivot and strap and bottom strap.

The doorset achieved integrity and insulation performances of 61 minutes. Initial integrity failure of the doorset was recorded as flaming to one of the glazed vision panels. No instance of integrity failure directly associated with the presence or performance of the floor spring, or its pivot accessories was recorded during the 74 minute duration of the test.

The critical factor when changing from one item of ironmongery to another is the size of the alternative item. A larger item may require more timber material to be removed from the leaf and therefore may provide an easier route for the passage of flames and/or hot gases leading to premature integrity failure.

Additionally, the amount of interruption to the intumescent seal specification at the door leaf to frame perimeter clearance gaps should be replicated or reduced from that originally specified for the tested doorset.

Top components

All components are formed from either stainless steel strip or are cast stainless steel. All sets utilise the same frame mounted top part, differing only in square or radius edges for the two ranges respectively. The footprint of the top part of the proposed pivot sets has nominal dimensions of 25 mm wide by 130 mm long and 5 mm thick which compares favourably to the dimensions of the top centre frame portion originally tested which had footprint dimensions of 25 mm wide by 165 mm long by 6 mm thick.

Similarly, the door portion of the top centre tested had dimensions of 29 mm wide by 122 mm long by 15 mm deep. The comparable component of the H131-100 pivot sets is the door plate which has dimensions of 25 mm wide by 110 mm long and 5 mm thick. For the H131-400, 401 & 402 pivot sets the door plate is a cast steel component having dimensions of 25 mm wide by 46 mm long and 12 mm deep.

It can therefore be determined that the components fitted to the top part of the door and frame have no dimensions greater than those of the tested components and therefore will require less removal of door leaf and frame material and less interruption to the intumescent seal specification at the door leaf to frame perimeter.

Further review of the tested specification shows that intumescent protection in the form of 1 mm thick Lorient Polyproducts 'MAPP paper' intumescent sheet material was fitted around the pivot components fitted to both the door leaf and frame. Therefore, it shall be a condition of this assessment that the same level and type of intumescent protection is provided to the proposed hardware.

Bottom components

Both ranges have identical door plates for top and bottom mounting to the door leaf. The bottom strap of the tested floor spring assembly had nominal dimensions of 24 mm wide by 235 mm long. Comparison of the door plates to the strap shows that the proposed components are negligibly wider at 25 mm but are much shorter, at 110 mm and 46 mm long, and therefore require much less removal of door material for their installation.

Where the original assembly was mounted on a floor spring closer mounted within a recess in the floor below the doorset, the proposed pivot sets are either mounted on a floor mounted 'L' bracket recessed into the door frame (H131-100, H131-400) or a floor mounted pivot plate (H131-401 & 402).

The tested assembly did not include intumescent protection to the bottom strap or floor spring, therefore, those models including a floor mounted support plate can be considered as a comparable condition to the original tested assembly and no requirement for additional intumescent protection is required to these components. For those models where an 'L' bracket support is used, the brackets shall be provided with a bedding of intumescent sheet material of the same type and thickness as discussed for the other components and referenced as 1 mm thick Lorient Polyproducts 'MAPP paper'.

Conclusions

Previously fire tested (or assessed by Warringtonfire) timber doorsets which have achieved 30 minutes integrity as discussed in this report may be fitted with H131-100 or H131-400 pivot hinges and H131-P44 pivot protectors (in conjunction with H131-400 pivot hinges), in accordance with recommendations given in this report, without detracting from the overall performance of the doorset for 30 minutes integrity performances (and insulation where relevant).

Previously fire tested timber doorsets constructed using a Halspan tri-layer particleboard door core or alternatively a Moralt 'Lamincore' door blank which have achieved 60 minutes integrity as discussed in this report may be fitted with the various Royde & Tucker pivot assemblies, in accordance with recommendations given in this report, without detracting from the overall performance of the doorset for 60 minutes integrity performances (and insulation where relevant).

The timber doorsets to which the items of hardware are to be fitted shall have been fire tested at a UKAS accredited laboratory (or assessed by Warringtonfire) to BS 476: Part 22: 1987, in a double-acting configuration, as discussed previously, and for the relevant period of integrity.

This 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 report would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.

Review

It has been confirmed by **Royde & Tucker Limited** that there have been no changes to the specification, materials or manufacturing location of the pivot hardware and accessories considered in the original appraisal referenced WF Assessment Report No. 112848 issued 5.

The original assessment has been written using appropriate test evidence generated at accredited test laboratories. The supporting test evidence has been deemed appropriate to support the manufacturers stated design.

The defined scope presented in the original assessment report relates to the behaviour of the proposed 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 pivot hardware and accessories in use.

This revalidation has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the PFPF guidelines to undertaking assessments in lieu of fire tests. 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 by the UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

The data used for the original appraisal has been re-examined and found to be satisfactory. The procedures adopted for the original assessment have also been re-examined and are similar to those currently in use.

Therefore, with respect to the assessment of performance given in WF Assessment Report No. 112848, the contents should remain valid for a further 5 years.

This review is based on information used to formulate the original assessment. No other information or data has been provided by Royde & Tucker Limited which could affect this review.

The original appraisal report was performed in accordance with the principles of the UK Fire Test Study Group Resolution 82: 2001. This review has therefore also been conducted using the principles of Resolution 82: 2001.

Validity

The assessment is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.

This assessment report is not valid unless it incorporates the declaration given below duly signed by the applicant.

Summary of Primary Supporting Data

CFR1009301

The test report referenced CFR1009301 and described briefly in the supporting data section of this report, relates to the fire performance of one double-acting single leaf doorset and one single-acting double leaf doorset, both doorsets incorporating various items of hardware and were tested in accordance with BS EN 1634-1:2008.

The doorset designated as 'Left hand doorset' had nominal overall dimensions of 2255 mm high by 912 mm wide and incorporated a door leaf with nominal overall dimensions of 2201 mm high by 825 mm wide by 44 mm thick. The door leaf comprised a core of Halspan 'Prima' tri-layer particleboard lipped to all four edges with Sapele hardwood timber.

The door leaf was supported on a Royde & Tucker Ltd 'H131-400' double-acting pivot set complete with 'H131-P44' stainless steel pivot protectors fitted to the top and bottom edges of the door leaf's hanging stile.

The doorset was also fitted with a Royde & Tucker Ltd roller latch and strike plate referenced 'H131-771' and 'H131-516' respectively. The latch was engaged for the test.

Doorset B, designated as the 'Right hand doorset' is not subject to this report and does not have any bearing upon any of the components featured within this report.

The specimen doorset satisfied the test requirements for the following periods:

		Doorset A	Doorset B
Integrity	Sustained Flames	50 minutes	42 minutes
	Gap Gauge	51 minutes*	51 minutes*
	Cotton Pad	50 minutes	41 minutes
Insulation		50 minutes	41 minutes

*The test duration. The test was discontinued after a period of 51 minutes.

Warrington Fire Research Centre or Cambridge Fire Research was not involved in any selection or sampling procedures of the specimen or any of the components.

Test date : 30th September 2010

Test sponsor : Royde & Tucker Ltd

Chilt/RF96062

A fire resistance test conducted in accordance with BS 476: Part 22: 1987 to a double-leaf, double-acting timber based doorset.

The doorset briefly comprised two Halspan particleboard cored door leaves each having nominal overall dimensions of 2040 mm high by 825 mm wide and 54 mm thick mounted within a hardwood timber door frame. The door leaves comprised a core of Halspan particleboard, 42 mm thick, faced on either side with 6 mm thick MDF and lipped to all four edges with hardwood timber, 10 mm thick.

The door leaves were supported on double action floor spring closers complete with double action mounting accessories comprising top pivot and strap and bottom strap. The doorset was not fitted with any form of latch and was therefore tested unlatched.

The specimen doorset satisfied the test requirements for the following periods:

	Doorset
Integrity	64 minutes
Insulation	64 minutes

*The test duration. The test was discontinued after a period of 68 minutes.

Warrington Fire Research Centre or Chiltern International Fire was not involved in any selection or sampling procedures of the specimen or any of the components.

Test date : 17th July 1996

Test Sponsor : The sponsor of the test has provided permission for the use of the report in the preparation of the assessment

Chilt/RF07055

A fire resistance test conducted in accordance with BS 476: Part 22: 1987 to a double-leaf, double-acting, timber based doorset with glazing.

The doorset briefly comprised two Spruce ply veneer cored door leaves each having nominal overall dimensions of 2600 mm high by 950 mm wide and 55 mm thick mounted within a hardwood timber door frame. The door leaves comprised a core of Moralt Spruce ply veneer, 47 mm thick, faced on either side with 4 mm thick particleboard and lipped to all four edges with hardwood timber, 9 mm thick.

The door leaves were supported on double action floor spring closers complete with double action mounting accessories comprising top pivot and strap and bottom strap. Each door leaf also included a glazed vision panel having nominal sight sizes of 1145 mm high by 145 mm wide. The doorset was not fitted with any form of latch and was therefore tested unlatched.

The specimen doorset satisfied the test requirements for the following periods:

	Doorset
Integrity	61 minutes
Insulation	61 minutes

The test was discontinued after a period of 74 minutes.

Warrington Fire Research Centre or Chiltern International Fire was not involved in any selection or sampling procedures of the specimen or any of the components.

Test date : 1st May 2007

Test Sponsor	:	The sponsor of the test has provided permission for the use of the report in the preparation of the assessment

Declaration by Royde & Tucker Ltd

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

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.

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 82:2001)

Signature: 

Name:
Russell Coldwell

Position:
Head of Technical Services

Date:
13th February, 2023

For and on behalf of:
Royde & Tucker Ltd.

Limitations

The following limitations apply to this assessment:

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.

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.

1. This report addresses itself solely to the elements and subjects discussed and do not cover any other criteria or modifications. All other details not specifically referred to should remain as tested or assessed.

2. This 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 field 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 field of application relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions against the ISO 834 time/temperature curve that is stipulated in the standard this assessment concludes to. 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 field of application, the element is suitable for its intended purpose.

6. This 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 report 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 report supersedes all previous versions/revisions and must be used to manufacture the assessed systems from the stated validity date on this front cover. Previous revisions of the report cannot be used once an updated report has been issued under a new revision.

9. This report addresses itself solely to the elements and subjects discussed and do not cover any other criteria or modifications. All other details not specifically referred to should remain as tested or assessed.

10. This 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.

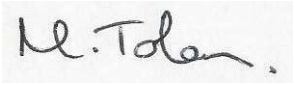
Signatories

Responsible Officer (Issue 6)

A.Green-Morris* - Product Assessor

Approved (Issue 6)

R Anning* - Principal Product Assessor



Approved (Issue 6)

M Tolan* - Senior Product Assessor

* For and on behalf of Warringtonfire

Report Issued: 15th March 2000

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

Revision History

Issue No: 1	Issue Date: 15th March 2000
Written By: S. Hankey	Approved By: A. Kearns

Issue No: 2	Re-issue Date: 19th October 2005
Written By: C. Crook	Approved By: S. Hankey
Reason for Revision: Addition of H131-400 pivot hinge.	

Issue No: 3	Re-issue Date: 22nd August 2012
Revised By: D. Forshaw	Approved By: A. Kearns
Reason for Revision: Inclusion of H131-P44 pivot protector.	

Issue No: 4	Re-issue Date: 15th May 2015
Revised By: D. Forshaw	Approved By: A. Kearns
Reason for Revision: Addition of pivot hardware for use on 60 minute timber doorsets, addition of emergency release door stops.	

Issue No: 5	Re-issue Date: 16th November 2017
Revised By: M.Tolan	Approved By: A. Kearns
Reason for Revision: Reviewed and revalidated assessment.	

Issue No: 6	Re-issue Date: 7th February 2023
Revised By: A.Green-Morris	Approved By: R.Anning, M.Tolan
Reason for Revision: Reviewed and revalidated assessment, with the removal of emergency release door stops.	