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Title:

The Fire Resistance Performance of Timber Doorsets Incorporating Retro Fitted Hardwood Timber Lippings Fixed to the Lower Edge of the Door Leaf to Reduce Large Threshold Gaps

WF Assessment Report No:

348696 Issue 2

Prepared for:

Doorpac Limited
Unit 6,
Ranskill Court,
Sheffield,
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Date:

30th January 2015

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Foreword

This assessment report relates to the fire resistance performance of timber doorsets.

This assessment has been written in accordance with the general principles outlined in BS EN 15725: 2010; *Extended application reports on the fire performance of construction products and building elements*, as appropriate.

This assessment uses established empirical methods of extrapolation and experience of fire testing similar assemblies, in order to extend the scope of application by determining the limits for the design based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance, if the elements were to be tested in accordance with BS 476: Part 22: 1987.

This 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 and is summarised in this report.

The defined scope presented in this 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 seal assemblies in use.

This assessment has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the 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.

Executive Summary

Objective

This report considers the expected fire resistance performance of timber doorsets as processed under CERTIFIRE certificate CAF 196, when incorporating modifications which fall outside the scope of this approval.

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Summary of Conclusions

It can be concluded that timber doorsets processed by Doorpac Limited under CERTIFIRE certificate CAF 196, modified as discussed in this report, should be capable of providing 30 or 60 minutes integrity performance (Depending on the model of the doorset), if subjected to a test in accordance with BS 476: Part 22: 1987.

This assessment 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 evidence referred to above. 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

1st August 2025

Introduction

This report considers the expected fire resistance performance of timber doorsets processed under CERTIFIRE certificate CAF 196, when incorporating modifications which fall outside the scope of this approval.

The doorsets incorporating the modifications, are required to provide 30 or 60 minutes integrity performance (depending on the model of the doorset) with respect to BS 476: Part 22: 1987.

FTSG

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.

Assumptions

Supporting Construction

It is assumed that the supporting construction into which the doorsets are fitted will be capable of supporting the doorset for at least the required fire resistance period.

Installation

It is assumed that the doorsets will be installed by competent installers in a similar manner to that used when installing the fire tested assemblies.

Clearance gaps

Door leaf to frame gaps can have a significant influence on the fire resistance performance of the doorset and it is therefore assumed that the leaf to frame gaps for the proposed doorsets will be no greater than those of the approved doors.

General Construction

It is assumed that the doorsets will be identical to those detailed in CERTIFIRE Certificate of Approval CAF 196, unless otherwise detailed within this report.

Proposals

It is proposed that doorsets, processed under CERTIFIRE certificate CAF 196, should provide up to 30 or 60 minutes integrity performance (Depending on the model of the doorset), if tested in accordance with BS 476: Part 22: 1987, when modified as follows:

Hardwood timber lipping's, up to a maximum thickness of 20 mm, incorporating a 1 mm thick by 30 mm wide intumescent strip along the back edge, are to be screw fixed to the threshold of the door leaf reinstating a threshold gap that complies with the requirements of CAF 196.

Basic Evidence

CAF 196

CERTIFIRE approval, covering the processing by DOORPAC Ltd, of fire doors manufactured by CERTIFIRE approved companies, in providing a fire resistance performance of 30 or 60 minutes integrity (Depending on the model of doorset) as defined in BS 476: Part 22: 1987.

Assessed Performance

CAF 196 covers the processing by DOORPAC Ltd, of fire doors manufactured by CERTIFIRE approved companies, in providing a fire resistance performance of 30 or 60 minutes integrity (Depending on the model of doorset) as defined in BS 476: Part 22: 1987. Details of the CERTIFIRE approved doorsets which are approved for processing under CAF 196 are listed below:

JELD-WEN Certificate No.	Timber Door Product	Aperture Cutting	Glazing of Apertures	Manufacture of Frames	MDF Frames	Resizing & Relipping
CF160	FD30 Flush & Die Formed	✔	✔	✔	✔	✘
CF177	FD60 Flush	✔	✔	✔	✘	✘
CF192	FD30 Tubeboard	✔	✔	✔	✔	✘
CF179	FD60 Die-formed	✘	✘	✔	✘	✘
CF271	FD30 Doors	✔	✔	✔	✘	✔
CF331	FD60 Doors	✘	✘	✔	✔	✘
CF394	FD60 Doors	✘	✘	✔	✔	✔
CF433	Corinthian Industries FD30 Doors	✘	✔	✔	✔	✘
CF572	FD30 Doors	✘	✘	✔	✔	✘
CF573	FD30 Doors	✘	✘	✔	✔	✘
CF5143	FD30 Doors	✔	✔	✔	✔	✔

Premdor Crosby Certificate No	Timber Door Product	Aperture Cutting	Glazing of Apertures	Manufacture of Frames	MDF Frames	Resizing & Relipping
CF195	Premdor Fireshield	✔	✔	✔	✔	✘
CF198	FD30 Moulded Skin Chipboard Core	✔	✔	✔	✔	✘
CF240	FD30 Premcore	✔	✔	✔	✔	✔
CF241	FD60 Premcore	✔	✔	✔	✘	✔
CF302	FD60 Flaxcore	✘	✘	✔	✘	✘
CF380	FD30 Tubecore Lite	✔	✔	✔	✔	✘
CF625	FD30 PremCORE Lite (L)	✔	✔	✔	✔	✔

Vicaima Certificate Number	Timber Door Product	Aperture Cutting	Glazing of Apertures	Manufacture of Frames	MDF Frames	Resizing & Relipping
CF218	FD30 'SDC'	✓	✓	✓	✓	✘
CF285	FD30 Superior	✓	✓	✓	✓	✘
CF454	FD60	✓	✓	✓	✓	✘
CF827	Magnet FD30 Flush Doors	✘	✘	✓	✓	✘

Certificate Number	Manufacturer	Timber Door Product	Aperture Cutting	Glazing of Apertures	Manufacture of Frames	MDF Frames	Resizing & Relipping
CF154	STP/Irmade	FD30 Doors	✓	✓	✓	✓	×
CF166	STP/Irmade	FD60 Flush	✓	✓	✓	×	×
CF338	J B Kind	FD30 Doors	✓	✓	✓	×	×

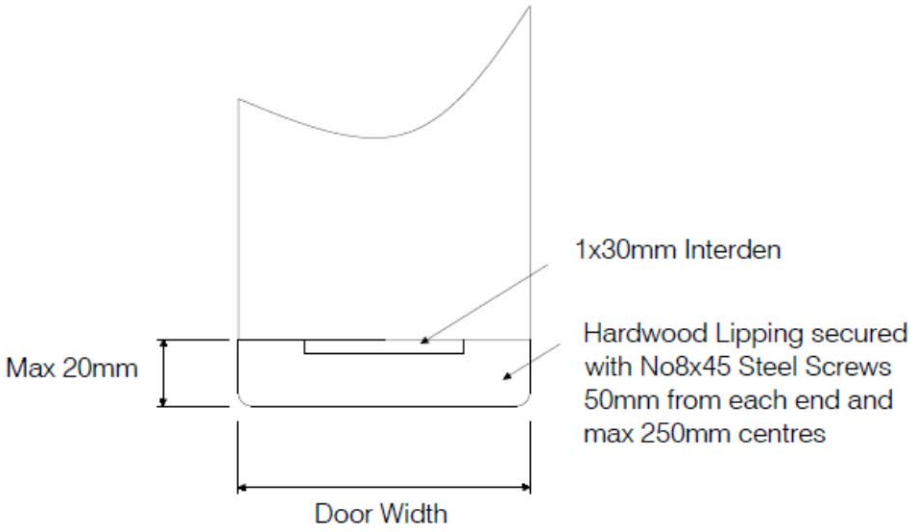
Falcon Certificate Number	Timber Door Product	Aperture Cutting	Glazing of Apertures	Manufacture of Frames	MDF Frames*	Resizing & Relipping
CF807	FD30 Strebord	✓	✓	✓	✓	✓
CF808	FD60 Strebord	✓	✓	✓	✓	✓

CERTIFIRE approval represent a higher level of attestation/quality than a simple type test, the approval being based upon a number of type tests, manufacturing quality control, audit testing and appraisal against a technical schedule. There is therefore little doubt that a CERTIFIRE approved doorset will be capable of providing the required fire resistance periods when subjected to test. The proposed doorset designs generally fall within the scope given in CAF 196. However, the doorsets include design features which are not specifically included within the scope of CAF 196 and as such these modifications are discussed separately.

The doorset certifications listed above and approved for processing under CAF 196, stipulate maximum door to frame gaps and threshold gaps. The maximum threshold gaps typically being no greater than 10 mm. In some instances remedial action is required where the maximum threshold gap has been exceeded. Larger gaps carry an increased risk of through gap formation, excessive timber degradation and occurrence of sustained flaming at the threshold of the doorset. There is also an increased risk of through gap formation and flaming at the head of the doorset once the door leaf has dropped off its hinges under fire test conditions (i.e. the larger the threshold gap, the more the door will drop and consequently the larger the head leaf/frame gap becomes).

Retro Fitted hardwood lipping

It is proposed that retro fitted hardwood timber lippings, with a maximum thickness of up to 20 mm are screw fixed to the threshold of the doorset where necessary, to reinstate a threshold gap equal to or less than the maximum gap specified in CERTIFIRE. Details of the proposed lipping are shown below.



The hardwood lipping would be mechanically fixed to the leaf threshold with 45 mm steel screws at maximum 250 mm centres. With a maximum thickness of 20 mm a minimum fixing depth of 15 mm into the door leaf should be provided. A 30mm wide by 1mm thick intumescent strip is to be included between the threshold and the lipping.

Once installed the hardwood lippings should ensure that any threshold gap is reduced to a distance equal to or less than the maximum value given in CERTIFIRE. This would reduce the risks previously discussed in this report such as gap formation and subsequent flaming at the head of the doorset under test conditions.

The hardwood lipping may also benefit the door leaf by giving added rigidity at the threshold and could lessen the effects of thermally induced deflection of the threshold.

The majority of the doorsets covered under CAF 196 are FD30 doorsets and it's expected that the density of the hardwood lipping would be greater than the rails found in these doorsets and of at least a similar density to the cores of doorsets formed from a solid core construction. Where the doorsets are of an FD60 type, the hardwood lipping will be of similar density to the rails or core constructions. Testing experience has shown the threshold to be amongst the least onerous locations during a fire test. Given that the retro fitted lipping will be of density at least similar to, or potentially greater than the existing threshold, it is anticipated that the retro fitted lipping will not detract from the required 30 minute or 60 minute integrity performance. Further confidence is provided by the additional intumescent protection included with the lipping. The retro fitted hardwood lippings are therefore positively appraised.

Conclusions

Timber doorsets processed by Doorpac Ltd. under CAF 196, modified as discussed in this report, should be capable of providing 30 or 60 minutes integrity (Depending on the model of doorset) if subjected to a test in accordance with BS 476: Part 22: 1987.

This assessment 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 evidence referred to above. 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.

Revalidation (8th July 2020)

It has been confirmed by Doorpac Ltd. that there have been no changes to the specification, materials or manufacturing location of the items considered in the original appraisal referenced WF Assessment Report No. 348696 dated 30th January 2015.

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. 348696, 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 Doorpac Ltd. 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

This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to Warringtonfire the assessment will be unconditionally withdrawn and **Doorpac Limited** will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 1st August 2025, after which time it is recommended that it be returned for re-appraisal.

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

Summary of Primary Supporting Data

CAF 196

CERTIFIRE approval covering the processing by DOORPAC Ltd, of fire doors manufactured by CERTIFIRE approved companies, in providing a fire resistance performance of 30 or 60 minutes integrity (Depending on the model of doorset) as defined in BS 476: Part 22: 1987.

Declaration by Doorpac Limited

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

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

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

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

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

Signed:

For and on behalf of:

Signatories

Approved

A. Kearns* - Technical Manager

Approved

D. Hankinson* - Principal Engineer

* For and on behalf of Warringtonfire.

Report Issued: 30th January 2015	**Issue 2 (9th July 2020)** – review and revalidation of report