

assessment report

Title:

The Fire Resistance
Performance of Timber
Doorsets Incorporating
Eurospec Lever Furniture and
Rim Latches

WF Assessment Report No:

166787 Issue 2

Prepared for:

**Eurospec Architectural
Hardware Limited**

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Date:

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Executive Summary

Objective	This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with Eurospec lever furniture and rim latches, as referenced later in this report.
Report Sponsor	Eurospec Architectural Hardware Limited
Address	Stancliffe Street Mill Hill Blackburn BB2 2QR
Summary of Conclusions	<p>Should the recommendations given in this report be followed, it can be concluded that previously fire tested (or assessed by Bodycote warringtonfire) timber doorsets which have achieved 20, 30, 60 or 120 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1: 2000, as discussed in this report, may be fitted with Eurospec lever furniture as detailed in Annex A, without detracting from the overall integrity performance of the doorset (and insulation where relevant).</p> <p>Should the recommendations given in this report be followed, it can be concluded that previously fire tested (or assessed by Bodycote warringtonfire) timber doorsets which have achieved 30 minutes integrity in accordance with BS EN 1634-1: 2000, as discussed in this report, may be fitted with Eurospec rim latches as detailed in Annex A, without detracting from the overall integrity performance of the doorset (and insulation where relevant).</p>
Valid until	1 st October 2012

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Introduction

This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with Eurospec lever furniture and rim latches, as referenced later in this report.

The proposed doorsets are required to provide a fire resistance performance of 20, 30, 60 or 120 minutes integrity and where applicable insulation, with respect to BS 476: Part 22: 1987 or BS EN 1634-1: 2000 when incorporating the proposed lever furniture.

The proposed doorsets are required to provide a fire resistance performance of 30 minutes integrity and where applicable insulation, with respect to or BS EN 1634-1: 2000 when incorporating the proposed rim cylinder latches.

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

It is assumed that the proposed architectural hardware will be fitted to timber based doorsets which have previously been shown to be capable of providing 20, 30 60 and 120 minutes integrity and where applicable.

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.

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 and latched position.

Doorset details

The proposed lever furniture will always be used in combination with a lock/latch and it is therefore assumed that the tested doorset will have been tested or assessed when incorporating a latch/lock.

It is assumed that the proposed rim cylinder latches will be fitted to timber based doorsets which have previously been shown to be capable of providing either 30 integrity performance, the critical aspects of the door construction are detailed later in this report.

Proposals

It is proposed that previously fire tested (or assessed by Bodycote **warringtonfire**) timber doorsets which have achieved 20, 30, 60 or 120 minutes integrity and, where applicable, insulation performance, as discussed later in this report, may be fitted with Eurospec lever furniture, in accordance with recommendations given in this report without detracting from the overall performance of the doorset.

It is also proposed that previously fire tested (or assessed by Bodycote **warringtonfire**) timber doorsets which have achieved 30 minutes integrity and, where applicable, insulation performance, as discussed later in this report, may be fitted with Eurospec rim cylinder latches, in accordance with recommendations given in this report without detracting from the overall performance of the doorset.

It is also proposed that the doorsets may be of single or double-leaf configuration. Details of the proposed range of architectural furniture are as follows:

CODE	DESCRIPTION	OTHER FINISHES
ZEB3005PC	51 x 10mm Escutcheon - Blank to suit Zinc Levers	SC
ZEE3005PC	51 x 10mm Escutcheon - Euro to suit Zinc Levers	SC
ZEP3005PC	51 x 10mm Escutcheon - Lock to suit Zinc Levers	SC
ZET3005PC	Thumbturn & Release to suit Zinc Levers	SC
ZET3025-IPC	Large Thumbturn & Release with indicator to suit Zinc Levers	SC
ZET3025PC	Large Thumbturn & Release to suit Zinc Levers	SC
ZEU3005PC	51 x 10mm Escutcheon - Oval to suit Zinc Levers	SC
ZIN3003PC	Lever on Rose	SC
ZIN3111PC	Lever on Rose	SC
ZIN3112PC	Lever on Rose	SC
ZIN3113PC	Lever on Rose	SC
ZIN3115PC	Lever on Rose	SC
ZIN3116PC	Lever on Rose	SC
ZIN3117PC	Lever on Rose	SC
ZIN3118PC/SC	Lever on Rose	PC, SC
ZIN3121PC	Lever on Rose	SC
ZIN3124PC/SC	Lever on Rose	PC, SC
ZIN3127PC/SC	Lever on Rose	PC, SC
ZIN3129PC/SC	Lever on Rose	PC, SC
ZIN3129SC	Lever on Rose	PC
ZIN3130PC	Lever on Rose	SC
ZIN3139PC/SC	Lever on Rose	PC, SC
RCB5260SV	Rim Cylinder Rollerball 60mm Level 2	PB, PC, WPB
RCN5240SV	Rim Cylinder Nightlatch 40mm Level 2	PB, PC, WPB
RCN5260SV	Rim Cylinder Nightlatch 60mm Level 2	PB, PC, WPB

Basic Test Evidence

WF Test Report No. 158456

The report referenced WF Test Report No. 158456 and briefly described in the supporting data section of this report, describes a test conducted in accordance with BS EN 1634-1: 2000 on two specimens of single-acting, single-leaf, timber doorset.

The test demonstrated the ability of the Doorsets A & B to provide 25 & 68 minutes integrity and insulation performance respectively.

Assessed Performance

Levers, Roses & Escutcheons

Fire doors often incorporate locking/latching devices either to retain the doorset in the closed position during a fire or simply for keeping the doorset closed/locked in normal use.

The introduction of a lock/latch case into a timber based leaf can increase the risk of localised integrity failure, via either the mortise removing enough leaf material that premature burn through can occur, or by interruption of the intumescent seals around the leaf perimeter by the strike/forend plate.

This appraisal does not however consider the implications of installing a specific lock, within a specific timber fire door construction and only considers the influence of the lever handle furniture, the suitability of the door leaf and latch/lock should be demonstrated by separate test/assessment evidence.

All of the proposed lever handles are entirely surface mounted and therefore do not require any associated removal of timber from the leaf or interruption of intumescent seals around the leaf perimeter, these already being a consequence of the inclusion of the door lock or latch. The affect of the proposed lever furniture upon the fire resistance performance of the doorset, would therefore be expected to be negligible and no reduction in performance would be anticipated as a consequence of their inclusion.

The following requirements of the doorset and latch/lock are however considered to be essential:

- The doorset shall be of a timber construction and must have provided the required 20, 30, 60 or 120 minute integrity performance when tested at a UKAS accredited laboratory in accordance with BS 476: Part 22: 1987 or EN 1634-1: 2000, be assessed for the required period by Bodycote **warringtonfire** or be CERTIFIRE approved for the required period.
- The tested/assessed doorset as described above must have been tested or assessed in the required configuration i.e. number of leaves and action.

- The tested doorset must have incorporated the required lock/latch or have been assessed by Bodycote **warringtonfire**/approved by CERTIFIRE to be suited to including the lock/latch for the required period. Alternatively the lock/latch may be detailed in a Bodycote **warringtonfire** assessment or CERTIFIRE approval to be suitable for use with the proposed door for the required period.

Rim cylinder latches

The test referenced WF Test Report No. 158456 included two single-acting, single-leaf, timber doorsets. Doorset A in this test was of a 44 mm thick timber based construction and included two Eurospec rim cylinder latches and provided 26 minutes integrity performance. Dow Corning, Firestop 400 mastic was applied behind the rim latch and Interdens intumescent sheet, 1 mm thick, was applied to the strike box where it cuts into the door frame rebate.

Although this doorset failed after a period of 26 minutes, the position of failure was remote from the latches, at the head of the leaf, and is not considered to be associated with the performance of the latches. No occurrences which would constitute an integrity failure of the doorset were observed in the area of the latches for the 35 minute test duration (the time at which the door was 'blanked off' to allow continuation of the test for Doorset B).

The proposed rim latches detailed in Annex A are similar to and directly comparable with these tested items.

This provides confidence that the proposed Eurospec rim cylinder latches may be installed into previously tested timber based doorsets (the critical aspects of which are detailed below) which have achieved at least the required 30 minutes integrity performance, without any anticipated deleterious affects.

Suitable doorsets

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 locks 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 EN 1634-1:2000*.

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 - 500 kg/m³
- b) Leaf to frame clearance gaps not to exceed 2.5 mm average and 3 mm maximum,
- c) Lipping density - 500 kg/m³ (30 minutes)
- d) Door leaf thickness – 44 mm minimum (30 minutes)

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.

When installing the rim cylinder latch, intumescent mastic must be applied behind the rim latch and Interdens intumescent sheet, 1 mm thick, must be applied to the strike box where it cuts into the door frame rebate.

If the proposed doorset is to be used in double-leaf configurations, the test or assessment must relate to this configuration.

* Additionally due to the nature of the RCB5260 SB roller ball latch, this latch cannot be guaranteed to retain a door leaf in the closed position under test conditions and therefore this device may only be fitted to doors which have been tested or assessed unlatched.

Conclusions

Previously fire tested (or assessed by Bodycote **warringtonfire**) timber doorsets which have achieved 20, 30, 60 or 120 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1: 2000, as discussed in this report, may be fitted with Eurospec lever furniture as detailed in Annex A, without detracting from the overall integrity performance of the doorset (and insulation where relevant).

Previously fire tested (or assessed by Bodycote **warringtonfire**) timber doorsets which have achieved 30 minutes integrity in accordance with BS EN 1634-1: 2000, as discussed in this report, may be fitted with Eurospec rim latches as detailed in Annex A, without detracting from the overall integrity performance of the doorset (and insulation where relevant).

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 Bodycote **warringtonfire** the assessment will be unconditionally withdrawn and Eurospec Architectural Hardware 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 October 2012, 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

**WF Test Report
No. 158456**

A test conducted in accordance with BS EN 1634-1: 2000 on two specimens of single-acting, single-leaf, timber doorset.

The results of the test are as follows:

		Doorset A	Doorset B
Integrity performance	Sustained flaming	25 minutes	68 minutes*
	Gap gauge	26 minutes*	68 minutes*
	Cotton Pad	25 minutes	68 minutes*
Insulation performance		25 minutes	68 minutes*

*The test duration

Test Date : 17th October 2006

Sponsor : Eurospec Architectural Hardware Limited

Declaration by Eurospec Architectural Hardware 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 Bodycote **warringtonfire** to withdraw the assessment.

Signed:

For and on behalf of:

Signatories


Responsible Officer
C. Johnson* - Technical Consultant


Approved
A Kearns* - Technical Manager

* For and on behalf of Bodycote **warringtonfire**.

Report Issued: 6 th September 2007

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

Issue 2 – Address updated. (20th September 2007)

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Annex A

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