

**Project Reference:** 4791562009

**Report Number:** 4791562009-1

**Issue Date:** 17<sup>th</sup> January 2025

**UL Technical Assessment Report of Fire Performance of Previously Fire Tested/classified timber-based door assemblies when fitted with Banham, Benton and Imperial Series Locks**

**Report Prepared for:**

**Banham Patent Locks Holding Ltd.**

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**This report has been prepared by Sajith Menon, Project Engineer, in full accordance with the PFPF standard procedures guidance, (as outlined in the 2021 edition of ‘Guide to undertaking technical assessments of fire performance of construction products based on test evidence’) and in line with the principles of EN 15725: 2010.**

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**Client Name:** Banham Patent Locks Holding Ltd.

**Date of Report:** 9<sup>th</sup> January 2025

## Introduction

This report relates to a request from Banham Patent Locks Holding Ltd. to undertake an assessment of the likely fire test performance of previously fire tested/classified timber based doorsets when fitted with Banham, Benton and Imperial Locks. This report covers various types of mortice and rim mounted locks and latches.

The request to assess was for the following reason/s:

- Provide a scope of use for the tested lock models with previously proven, timber based doorsets required to provide fire resistance performances of 30-minutes and 60-minutes.
- Provide a scope of use for other models from the series with timber based doorsets required to provide fire resistance performances of 30-minutes and 60-minutes.

The proposed doorsets are required to satisfy the integrity criteria and, where applicable the insulation criteria, of EN 1634-1: 2014 +A1: 2018 for periods of 30-minutes and 60 -minutes.

## Definition

In accordance with the PFPF guide – **Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence** the definition used for the scope of this report is as follows.

*‘A technical evaluation of the likely performance of a component or element of structure (as defined in Approved Document B for England and Wales or their equivalent in Scotland and Northern Ireland) if it were subject to a standard fire test.*

*An assessment may consider design changes to a tested element of construction for a specific project or it could form a wider scope of approval with a defined period of validity*

*Assessments are based on sufficient relevant test evidence and provide a defined scope of approval for a particular design or range of designs and is an opinion of the likely performance of a component or element if it were subject to a standard fire test’.*

For the purpose of this assessment the level of complexity is defined as –

## Intermediate Assessment

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.

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#### Client Declaration

During the application process the client, Banham Patent Locks Holding Ltd. has confirmed in writing the following:

“All information and evidence provided is accurate and reflects exactly the product or system which is subject to assessment. All information relevant to the assessment; references, drawings technical specifications, photographs and test/certification reports have been made available to the UL assessor; including any test failures and any information/evidence which they are aware of which may be unfavourable to the assessment outcome”.

The client has confirmed that to their knowledge the product or system has not been tested in the configuration (or similar) they are seeking an assessment on.

The original application declaration is kept on file for reference.

#### UL Declaration

UL have agreed to undertake this assessment based on the client’s supplied information and their declaration confirming full disclosure of information. UL have reviewed the application and have completed an impartiality assessment. This report therefore represents an independent expert opinion, which has not been influenced by any commercial, financial, or other pressures, that could compromise impartiality.

#### Assumptions

It is assumed that the doorsets to which the lock assemblies may be fitted shall be previously tested and proven in the required single-action, single-leaf configuration and for the required period of fire resistance performance, having demonstrated their capability to provide 30 minutes or 60 minutes integrity and, where applicable, insulation.

In all cases, the doorsets, to which the lock assemblies are proposed to be fitted, shall be previously proven in terms of the required level of fire resistance performance when fitted with similarly mounted lock assembly and, therefore, are also proven when incorporating similarly sized mortices or cutouts to the door leaf and frame to those required for the installation of the lock assemblies discussed.

The purpose of this assessment is to consider the use of the Banham, Benton and Imperial lock assemblies in terms of their suitability for inclusion within timber based doorsets that have demonstrated the relevant fire resistance performance when fitted with a mortice or rim mounted lock/latch (as appropriate), therefore, the scope of this report is limited only to doorsets satisfying the above criteria.

It is assumed that the doorsets will be installed by competent installers and that they are mechanically fixed to the supporting construction in an equivalent manner to that tested.

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 frame clearance gaps will not exceed those measured for the relevant fire tested doorset.

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Where a lock considered by this report does not incorporate a self-latching mechanism, i.e., deadlocks, then either the deadbolt must be engaged, i.e., the lock is used in a permanently locked situation, or the doorset must have been proven for the required period without the restraint of a latch/lock.

The proposed doorsets will include a surface mounted overhead door closer capable of returning the door leaf to the fully closed position and overcoming any resistance from the latch mechanism.

The installation of a lock, be it morticed into the edge of a door leaf or rim mounted, together with the corresponding strike plate to the door frame invariably requires the interruption of the doorset's standard intumescent seal specification. The amount of interruption should be replicated or reduced from that originally recorded for the tested doorset. The specific intumescent protection included with the tested lock assemblies is detailed later in this report and shall always be fitted with the lock assemblies.

### Proposals

It is proposed that previously fire tested timber based doorsets which have achieved 30 minutes or 60 minutes integrity and, where applicable, insulation performance, as discussed in this report, may be fitted with the Banham , Benton and Imperial lock/latch assemblies, in accordance with the recommendations given in this report, without detracting from the overall performance of the doorset in terms of the requirements of EN 1634-1: 2014+A1:2018.

Lock/latch models covered by this report are only those included in the referenced series, as detailed in Annex B of this report.

### Assessment - Performance to EN 1634-1: 2014 +A1: 2018

This assessment is based on primary test evidence generated to evaluate the performance of the referenced series of locks.

The reports referenced in Annex A detail fire resistance tests conducted in accordance with EN 1634-1: 2014+ A1: 2018 and is cited in support of this assessment.

The locks were tested in both 30 minute and 60-minute timber based doorsets. The doorsets were typical constructions of their type, i.e., 44mm doors in softwood frames for 30 minutes and 54mm doors in hardwood frames for 60 minutes.

The tests were designed with the inclusion of multiple locks on each doorset to maximise the scope of data for the different lock ranges. The models selected for testing were determined based on characteristics from each range that could be determined as either typical or the most onerous case.

\*The one exception to this being a permanently locked door, e.g. cupboard or dry riser where the doorset would also be provided with appropriate signage such as 'Fire door keep locked'.

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The test report referenced **FPA 106266 r1** details a fire resistance test conducted on three identical timber based single-leaf, single-acting doorsets, all opening in towards the furnace. The doorsets were of a 30-minute rated construction comprising a nominally 44mm thick door leaf mounted within a softwood timber frame.

The doorset A was installed with two locks – (i) a mortice lock referenced Benton BE-B0172-100 installed at 883mm from the base of the leaf and 80mm in from the leading edge of the leaf where the latch was engaged during the test and(ii) a Rim lock referenced Banham FD5000 installed at a height of 1485mm from the base of the leaf and flushed with the leading edge of the leaf where the latch was dis-engaged during the test. The BE-B0172-100 model was protected with 5V9Z-000 – 1mm Interdens and FD5000 model was protected with 2mm Interdens. Doorset A demonstrated the ability to provide integrity and insulation performances of 37 minutes.

The doorset B was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172M-100 installed at a height of 883mm from the base of the leaf and 90mm in from the leading edge where the latch was engaged during the test and (ii) a rim latch lock referenced Banham EL4000 installed at 1485mm from the sill of the leaf where the latch was disengaged during the test. The BE-B0172M-100 model was protected with 5V9Z-000-1mm Interdens and the model EL4000 was protected with 2V9Z-002 – 2mm Interdens. Doorset B demonstrated the ability to provide integrity and insulation performances of 37 minutes.

The doorset C was installed with two locks – (i) a mortice lock referenced Banham M5000 installed at 1m from the sill where the dead bolt was disengaged during the test and (ii) a rim latch referenced Banham NS3000 fixed as per manufacturer’s guidelines where the latch was engaged during the test. The model M5000 was protected with 2V9V-004-2mm Interdens and the model NS3000 was protected with Interdens 1mm. Doorset C demonstrated the ability to provide integrity and insulation performances of 37 minutes.

The test report referenced **FPA 106267 r1** details a fire resistance test conducted on three identical timber based single-leaf, single-acting doorsets, all opening in towards the furnace. The doorsets were of a 30-minute rated construction comprising a nominally 44mm thick door leaf mounted within a softwood timber frame.

The doorset A was installed with a single lock – (i) a mortice case lock referenced Imperial G5050-076 installed at 925mm from the base of the leaf and 80mm in from the leading edge of the leaf where the latch was engaged during the test. The G5050-076 model was protected with 1V9Z-001 1mm Interdens. Doorset A demonstrated the ability to provide integrity and insulation performances of 37 minutes.

The doorset B was installed with a single lock – (i) a mortice case lock referenced Imperial G7012-151 installed at a height of 1000mm from the sill the latch was engaged during the test. The model G7012-151 was protected with 1V9Z-004 - 1mm. Doorset B demonstrated the ability to provide integrity and insulation performances of 46 minutes.

The doorset C was installed with two locks – (i) a mortice lock referenced Banham M2003 installed at 895mm from the bottom edge of the leaf where the latch was not applicable and dead bolt disengaged during the test and (ii) a roller bolt lock rim latch referenced Banham FD5000 fixed at a height of 1456mm from the base of the leaf and flush with leading edge of the leaf where the latch was engaged during the test. The M2003 model was protected with 2V9V-004 – 2mm Interdens and the FD5000 model was protected with 2mm Interdens. Doorset C demonstrated the ability to provide integrity and insulation performances of 50 minutes.

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The test report referenced **FPA 106268 r1** details a fire resistance test conducted on three identical timber based single-leaf, single acting doorsets, all opening in towards the furnace. The doorsets were of a 60-minute rated construction comprising a nominally 54mm thick door leaf mounted within a hardwood timber frame.

The doorset A was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172-100 installed at 1012mm from the base of the leaf where the latch was engaged during the test and (ii) a Rim roller latch dead lock referenced Banham FD5000 installed at a height of 1485mm from the base of the leaf and flushed with the leading edge of the leaf where both latch and deadbolt were disengaged during the test. The model BE-B0172-100 was protected with 5V9Z-004 – 2mm Interdens and the model FD5000 was protected with 2mm Interdens. Doorset A demonstrated the ability to provide integrity and insulation performances of 66 minutes.

The doorset B was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172M-100 installed at a height of 1035mm from the base of the leaf where the latch was engaged during the test and (ii) a rim latch lock referenced Banham EL4000 installed at 1492mm from the base of the leaf where the latch was disengaged during the test. The model BE-B0172M-100 was protected with 5V9Z-004 – 2mm Interdens and the model EL4000 was protected with 2V9V-002 – 2mm Interdens. Doorset B demonstrated the ability to provide integrity and insulation performances of 65 minutes.

The doorset C was Installed with two locks – (i) a mortice dead lock referenced Banham M5000 installed at 1035mm from the base of the leaf and 15mm in from edge of leaf where the dead bolt was disengaged during the test and (ii) a rim latch referenced Banham NS3000 fixed at a height of 1482mm from the base of the leaf and flush with leading edge where the latch was engaged during the test. The model M5000 was protected with 2V9V-004- 2mm Interdens and the model NS3000 was protected with 2mm Interdens. Doorset C demonstrated the ability to provide integrity and insulation performances of 66 minutes.

The test report referenced **FPA 106269 r1** details a fire resistance test conducted on three identical timber based single-leaf, single acting doorsets, all opening in towards the furnace. The doorsets were of a 60-minute rated construction comprising a nominally 54mm thick door leaf mounted within a hardwood timber frame.

The doorset A was installed with a single lock – (i) a mortice case lock referenced Imperial G5050-076 installed at 1000mm from the sill where the latch was engaged during the test. The model G5050-076 was protected with 1V9Z-007 – 2mm Interdens. Doorset A demonstrated the ability to provide integrity and insulation performances of 72 minutes.

The doorset B was installed with a single lock – (i) a mortice case lock referenced Imperial G7012-151 installed at a height of 1000mm from the sill where the latch was engaged during the test. The model G7012-151 was protected with 1V9Z-010 – 2mm Interdens. Doorset B demonstrated the ability to provide integrity and insulation performances of 65 minutes.

The doorset C was installed with two locks – (i) a mortice dead lock referenced Banham M2003 installed at 925mm from the base of the leaf where dead bolt was disengaged during the test and (ii) a roller latch dead lock rim latch referenced Banham FD5000 fixed at a height of 1453mm from the base of the leaf and flush with leading edge of the leaf where the latch was engaged during the test. The model M2003 was protected with 2V9V-004 – 2mm Interdens and the model FD5000 was protected with 2mm Interdens. Doorset C demonstrated the ability to provide integrity and insulation performances of 69 minutes.

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A review of the observations taken from the test reports referenced has determined that there were no instances of integrity failure to the doorsets directly related to, or as a consequence of, the installation of, the locksets prior to either the required 30- or 60-minute performances.

The test data is therefore considered to have adequately demonstrated the performance of the tested lock models for in excess of the required ratings.

It is therefore reasonable to consider that, based on the above positive results, the tested lock models can be used with other manufacturer's doorsets for the same fire resistance periods, subject to those doorsets complying with the requirements details in the 'suitable doorsets' section of the report.

### **Banham Locks**

A review of the door preparation requirements for the Banham rim lock range was made and the models – FD5000, EL4000 and NS3000 were selected for testing. Their selection was on the basis that they were representative of all other models and included the most onerous installation requirements.

The FD5000 was selected for testing on the basis that it was the only rim lock model with a roller latch bolt and the size of the latch bolt was smaller than others in the range. The EL4000 was selected for testing on the basis that it was an electronic rim lock and is determined to pose bigger risk to the integrity of the doorset due to its complex nature. The model NS3000 was selected based on thicker forend and strike, requiring more door and frame material to be removed for its installation.

The characteristics of all other models from the range are considered to be consistent with the tested models or a less onerous condition. Models including a standard latch bolt are considered to have a more positive engagement and, in all cases, the latch bolts are of a steel construction.

From the range of mortice lock models – M2003 and M5000 were considered as the most representative and onerous of all as these models had larger forend height and width which requires more morticing the door leaf and is considered more critical. The case dimensions were similar to other models from the range.

Based on the test data discussed earlier, all tested models have been shown to demonstrate a positive contribute towards the performance of timber based doorsets for 30 minutes and 60 minutes.

It is therefore reasonable to conclude that the performance of other models for Banham range would be expected to be equal to that of the tested models. The individual models covered by this report are those listed in Annex B.

Use of the locks or latches is subject to confirming that the proposed doorsets complying with the requirements details in the 'suitable doorsets' section of this report.

Regardless of these model variations, all locks will be required to include the same level of intumescent protection as was provided to the tested locks shown in the 'Assessment' section. For 30-minute timber based doorsets, a 1mm thickness of Interdens intumescent sheet and for 60 minute timber based doorsets, a 2mm thickness of Interdens. The intumescent sheet material shall be cut to match the shape of the lock case and envelope it on all faces within the mortice cut into the door leaf and behind its forend. Additionally, a piece of the same intumescent sheet material shall be cut to suit and bed the strike plate on to the door frame.

## **Benton locks**

A review of the door preparation requirements for Benton lock range was made and models – BE-B0172-100 and BE-B0172M-100 were considered for testing. The selection of these models was made on the basis that; they were representative of all other models whilst including the most onerous installation requirements.

The amount of door preparation needed for the tested models was greater, these models had longer backset lengths requiring a deeper mortice to be cut into the door. The tested models also included a double cylinder penetrating through the door, which is more onerous than the models that do not have a double cylinder. The latch material of the tested models was similar to the other models.

All other non-tested models shared the same or smaller case and forend dimensions.

As discussed previously, a review of the observations taken from the test has determined that there were no instances of integrity failure to either doorset directly related to, or as a consequence of, the installation of the locksets for in excess of the required 30 minute and 60-minute performances.

It is therefore reasonable to conclude that the performance of other models for Benton series would be expected to be equal to that of the tested models. The individual models covered by this report are those listed in Annex B.

Use of the locks or latches is subject to confirming that the proposed doorsets complying with the requirements details in the 'suitable doorsets' section of this report.

Regardless of these model variations, all locks will be required to include the same level of intumescent protection as was provided to the tested locks shown in the 'Assessment' section. For 30-minute timber based doorsets, a 1mm thickness of Interdens intumescent sheet material, and for 60-minute timber based doorsets, a 2mm thickness of Interdens, shall be cut to match the shape of the lock case and envelope it on all faces within the mortice cut into the door leaf and behind its forend. Additionally, a piece of the same intumescent sheet material shall be cut to suit and bed the strike plate on to the door frame.

The performance of the tested model has therefore been established. Variations within the tested series include lock models such as latch, dead lock, night latch, lift to lock, escape lock and bathroom lock. In all instances these are differences in function, so the lock itself, and therefore its installation into the door leaf, remains the same, or less onerous, than the tested model.

## **Imperial Locks**

A review of the door preparation requirements for Imperial lock range was made and models – G5050-076 and G7012-151 were considered for testing. The selection of these models was made on the basis that; they were representative of all other models whilst including the most onerous installation requirements.

The amount of door preparation needed for the tested models was either greater or similar to the other models as the case size and forend dimensions were either similar or larger than their variations. Additionally, the case thickness and combined forend thickness of the tested and non-tested models were almost identical. Models including a standard latch bolt are considered to have a more positive engagement and, in all cases, the latch bolts are of brass construction. However, it is permissible to use steel latch bolts of the same shape and size as those tested since the material tested was of a lower melting point and therefore could be considered as more onerous.

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Also, the strike plate dimensions of the tested models were either similar or larger than other models requiring more door frame material to be removed for its installation.

Thus, the characteristics of all other models from the range are considered to be consistent with the tested models or a less onerous condition.

Based on the test data discussed earlier, all tested models have been shown to demonstrate a positive contribute towards the performance of timber based doorsets for 30 minutes and 60 minutes.

It is therefore reasonable to conclude that the performance of other models for Imperial range would be expected to be equal to that of the tested models. The individual models covered by this report are those listed in Annex B.

Use of the locks or latches is subject to confirming that the proposed doorsets complying with the requirements details in the 'suitable doorsets' section of this report.

Regardless of these model variations, all locks will be required to include the same level of intumescent protection as was provided to the tested locks shown in the 'Assessment' section. For 30-minute timber based doorsets, a 1mm thickness of Interdens intumescent sheet and for 60-minute timber based doorsets, a 2mm thickness of Interdens. The intumescent sheet material shall be cut to match the shape of the lock case and envelope it on all faces within the mortice cut into the door leaf and behind its forend. Additionally, a piece of the same intumescent sheet material shall be cut to suit and bed the strike plate on to the door frame.

The performance of the tested models has therefore been established. Variations within the tested series include lock models such as latch, dead lock, night latch, escape lock and bathroom lock. In all instances these are differences in function, so the lock itself, and therefore its installation into the door leaf, remains the same, or less onerous, than the tested model.

## Suitable doorsets

Within the scope of this report, it is intended that the proposed lockset assemblies may be used with doorsets other than those included in the original tests. To enable the report's use on a general basis, and avoiding restriction of it to specific manufacturers' doorsets, the following requirements are given to ensure that the locksets are used only with appropriately proven doorsets:

The timber based doorset including its door frame, intumescent seals and any other installed ironmongery shall have achieved a 30 minute or 60-minute fire resistance performance (as relevant) when tested to EN 1634-1 by a suitably accredited laboratory. Within the UK this would be a laboratory accredited by UKAS for the test method.

Those aspects of the doorset construction considered critical to its performance are the material of the door frame, the door leaf to frame clearance gaps and the lipping material. Close attention must be paid to these details, and they should not be altered from that previously tested. To ensure compatibility of the doorset construction with the scope of use given in this report for the locksets, the following minimum specification must be followed for 60-minute timber based doorsets:

- Door frame density – 650 kg/m<sup>3</sup> Hardwood
- Leaf to frame clearance gaps not to exceed 3 mm average and 3.5 mm maximum
- Door leaves must be lipped with hardwood, minimum 8 mm thick – density 650 kg/m<sup>3</sup>
- Door leaf thickness – 54 mm

The following minimum specification must be followed for 30-minute timber based doorsets:

- Door frame density – 500 kg/m<sup>3</sup> softwood
- Leaf to frame clearance gaps not to exceed 3 mm average and 3.5 mm maximum
- Door leaves must be lipped with hardwood, minimum 8 mm thick – density 650 kg/m<sup>3</sup>
- Door leaf thickness – 44 mm

Use of the locksets shall only be considered where the proposed doorset has demonstrated the required performance when fitted with a similarly sized and positioned lockset and the amount of interruption of the standard intumescent seal specification at the door leaf to frame perimeter clearance gaps can be replicated or reduced from that originally included in the tested assembly.

In all instances, the lockset must be installed with the requisite intumescent protection described previously.

Test evidence for the proposed doorset must be appropriate to the scope of doorset configuration considered by this report which is single-action, single leaf only.

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#### Limits of Applicability

This assessment does not constitute product certification by UL and should not be used to demonstrate compliance where the project requires product certification.

#### Assessment Conclusion

The Banham, Benton and Imperial Series lock assemblies and accessories detailed in this report would be expected to contribute positively towards the overall fire resistance performance of previously proven timber based doorsets required to provide performances of 30 minutes or 60 minutes, subject to satisfaction of the assumptions and requirements for suitable doorsets detailed, if tested in accordance with EN 1634-1: 2014+ A1: 2018.

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**UL Confirmation of 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 should be re-evaluated, 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 (if the clause above is not enacted) after which time it is recommended that it be submitted to the assessing authority for re-evaluation.

This report may only be used in its entirety and should be supplied to interested parties or AHJ's as such.

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

**Signatories**

Engineer Completing the Assessment on behalf of UL.

<b>Name of Engineer</b>	<b>Signature</b>	<b>Date</b>
Sajith Menon		17 <sup>th</sup> January 2025
<b>Name of Reviewer</b>	<b>Signature</b>	<b>Date</b>
Danny Forshaw		17 <sup>th</sup> January 2025

<b>Date of Issue</b>	17 <sup>th</sup> January 2025
<b>Date end of validity (five years from issue)</b>	17 <sup>th</sup> January 2030

Annex A – Primary Evidence referred to

**Lab:** The Fire Protection Association

**Report Number:** 106266 r1

The test included three single-acting, single-leaf timber based doorsets. The doorsets were referenced as Doorset A, Doorset B and Doorset C for the purpose of the test. The doorsets were 30-minute timber-based assemblies comprising a nominally 44mm thick door leaf of 3-layer particle board construction with hardwood lippings to the vertical edges and mounted within a softwood timber frame.

The doorset A was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172-100 installed at 883mm from the base of the leaf and 80mm in from the leading edge of the leaf where the latch was engaged during the test and (ii) a Rim roller latch lock referenced Banham FD5000 installed at a height of 1485mm from the base of the leaf and flushed with the leading edge of the leaf where the latch was dis-engaged during the test.

The doorset B was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172M-100 installed at a height of 883mm from the base of the leaf and 90mm in from the leading edge where the latch was engaged during the test and (ii) a rim latch lock referenced Banham EL4000 installed at 1485mm from the sill of the leaf where the latch was disengaged during the test.

The doorset C was installed with two locks – (i) a mortice lock referenced Banham M5000 installed at 1m from the sill where the dead bolt was disengaged during the test and (ii) a rim latch referenced Banham NS3000 fixed as per manufacturer’s guidelines where the latch was engaged during the test.

All doorsets were mounted such that their leaves opened towards the heating conditions of the test.

The results of the test were as follows:

Doorset A	Doorset B	Doorset C
Integrity:	Integrity:	Integrity:
Sustained flames: 37* minutes	Sustained flames: 37* minutes	Sustained flames: 37* minutes
Gap gauge: 37* minutes	Gap gauge: 37* minutes	Gap gauge: 37* minutes
Cotton pad: 37* minutes	Cotton pad: 37* minutes	Cotton pad: 37* minutes
Insulation: 37* minutes	Insulation: 37* minutes	Insulation: 37* minutes

\* No failure, the test being terminated at this time.

Test Date: 5<sup>th</sup> August 2024

Report Date: 14<sup>th</sup> November 2024

Test Sponsor: Banham Patent Locks Holdings Ltd.

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**Lab:** The Fire Protection Association

**Report Number:** 106267 r1

The test included three single-acting, single-leaf timber based doorsets. The doorsets were referenced as Doorset A, Doorset B and Doorset C for the purpose of the test. The doorsets were of a 30-minute timber based doorset assemblies comprising a nominally 44mm thick door leaf of 3-layer particle board construction with hardwood lippings to the vertical edges and mounted within a softwood timber frame.

The doorset A was installed with a single lock – (i) a mortice case lock referenced Imperial G5050-076 installed at 925mm from the base of the leaf and 80mm in from the leading edge of the leaf where the latch was engaged during the test.

The doorset B was installed with a single lock – (i) a mortice case lock referenced Imperial G7012-151 installed at a height of 1000mm from the sill the latch was engaged during the test.

The doorset C was installed with two locks – (i) a mortice lock referenced Banham M2003 installed at 895mm from the bottom edge of the leaf where the latch was not applicable and dead bolt disengaged during the test and (ii) a roller bolt lock rim latch referenced Banham FD5000 fixed at a height of 1456mm from the base of the leaf and flush with leading edge of the leaf where the latch was engaged during the test.

All doorsets were mounted such that their leaves opened towards the heating conditions of the test.

The results of the test were as follows:

Doorset A	Doorset B	Doorset C
Integrity: Sustained flames: 37# minutes Gap gauge: 37# minutes Cotton pad: 37# minutes Insulation: 37# minutes	Integrity: Sustained flames: 46 minutes Gap gauge: 50* minutes Cotton pad: 50* minutes Insulation: 46 minutes	Integrity: Sustained flames: 50* minutes Gap gauge: 50* minutes Cotton pad: 50* minutes Insulation: 50* minutes

#Evaluation for Doorset A was stopped at 37 minutes at the request of sponsor.

\* No failure, the test being terminated at this time.

Test Date: 6<sup>th</sup> August 2024

Report Date: 14<sup>th</sup> November 2024

Test Sponsor: Banham Patent Locks Holdings Ltd.

**Report Number: 106268 r1**

The test included three single-acting, single-leaf timber based doorsets. The doorsets were referenced as Doorset A, Doorset B and Doorset C for the purpose of the test. The doorsets were of a 60-minute timber based doorset assemblies comprising a nominally 54mm thick door leaf of 3-layer particle board construction with hardwood lippings to the vertical edges and mounted within a hardwood timber frame.

The doorset A was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172-100 installed at 1012mm from the base of the leaf where the latch was engaged during the test and (ii) a Rim roller latch dead lock referenced Banham FD5000 installed at a height of 1485mm from the base of the leaf and flushed with the leading edge of the leaf where both latch and deadbolt were disengaged during the test.

The doorset B was installed with two locks – (i) a mortice case lock referenced Benton BE-B0172M-100 installed at a height of 1035mm from the base of the leaf where the latch was engaged during the test and (ii) a rim latch lock referenced Banham EL4000 installed at 1492mm from the base of the leaf where the latch was disengaged during the test.

The doorset C was installed with two locks – (i) a mortice dead lock referenced Banham M5000 installed at 1035mm from the base of the leaf and 15mm in from edge of leaf where the dead bolt was disengaged during the test and (ii) a rim latch referenced Banham NS3000 fixed at a height of 1482mm from the base of the leaf and flush with leading edge where the latch was engaged during the test.

All doorsets were mounted such that their leaves opened towards the heating conditions of the test.

The results of the test were as follows:

Doorset A	Doorset B	Doorset C
Integrity:	Integrity:	Integrity:
Sustained flames: 66 minutes	Sustained flames: 65 minutes	Sustained flames: 66 minutes
Gap gauge: 68* minutes	Gap gauge: 68* minutes	Gap gauge: 68* minutes
Cotton pad: 66 minutes	Cotton pad: 65 minutes	Cotton pad: 66 minutes
Insulation: 66 minutes	Insulation: 65 minutes	Insulation: 66 minutes

\* No failure, the test being terminated at this time.

Test Date: 3<sup>rd</sup> September 2024

Report Date: 14<sup>th</sup> November 2024

Test Sponsor: Banham Patent Locks Holdings Ltd.

**Report Prepared For:** Banham Patent Locks Holding Ltd.

**Project:** 4791562009

**Report No.:** 4791562009-1

**Lab:** The Fire Protection Association

**Report Number:** 106269 r1

The test included three single-acting, single-leaf timber based doorsets. The doorsets were referenced as Doorset A, Doorset B and Doorset C for the purpose of the test. The doorsets were of a 60-minute timber based doorset assemblies comprising a nominally 54mm thick door leaf of 3-layer particle board construction with hardwood lippings to the vertical edges and mounted within a hardwood timber frame.

The doorset A was installed with a single lock – (i) a mortice case lock referenced Imperial G5050-076 installed at 1000mm from the sill where the latch was engaged during the test.

The doorset B was installed with a single lock – (i) a mortice case lock referenced Imperial G7012-151 installed at a height of 1000mm from the sill where the latch was engaged during the test.

The doorset C was installed with two locks – (i) a mortice dead lock referenced Banham M2003 installed at 925mm from the base of the leaf where dead bolt was disengaged during the test and (ii) a roller latch dead lock rim latch referenced Banham FD5000 fixed at a height of 1453mm from the base of the leaf and flush with leading edge of the leaf where the latch was engaged during the test.

All doorsets were mounted such that their leaves opened towards the heating conditions of the test.

The results of the test were as follows:

Doorset A	Doorset B	Doorset C
Integrity:	Integrity:	Integrity:
Sustained flames: 72* minutes	Sustained flames: 66 minutes	Sustained flames: 69 minutes
Gap gauge: 72* minutes	Gap gauge: 72* minutes	Gap gauge: 72* minutes
Cotton pad: 72* minutes	Cotton pad: 65 minutes	Cotton pad: 69 minutes
Insulation: 72* minutes	Insulation: 65 minutes	Insulation: 69 minutes

\* No failure, the test being terminated at this time.

Test Date: 4<sup>th</sup> September 2024

Report Date: 14<sup>th</sup> November 2024

Test Sponsor: Banham Patent Locks Holdings Ltd.

**Report Prepared For:** Banham Patent Locks Holding Ltd.

**Project:** 4791562009

**Report No.:** 4791562009-1

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Annex B – Lock Models suitable for 30- and 60-minute applications.

**A. Banham Range:**

SL No.	Reference	Type
1	BPL Cylinder Range	Banham Euro Cylinder
2	BS2510	Banham Nightlatch
3	EL4000	Banham Dead locking rim lock Electric Release
4	FD5000	Banham Roller bolt lock
5	G7134-76mm	Banham Mortice
6	G7134-63mm	Banham Mortice
7	L2000	Banham Rim Nightlatch BS3621
8	L2008	Banham Rim Nightlatch BS8621
9	M2002	Banham Mortice
10	M2003	Banham BS8621 Mortice Deadlock
11	M5000	Banham BS3621 Euro Mortice Deadlock
12	M5008	Banham Mortice
13	MA7000	Banham Mortice
14	M97	Banham Mortice
15	NS3000	Banham Dead locking rim lock - Narrow Stile

**B. Benton Range:**

SL No.	Reference	Type
1	BE-B0172-60	Euro Mortice
2	BE-B0172-80	Euro Mortice
3	BE-B0172-100	Euro Mortice
4	BE-B0172M-60	Euro Mortice
5	BE-B0172M-80	Euro Mortice
6	BE-B0172M-100	Euro Mortice
7	BE-B0472-60	Euro Mortice
8	BE-B0472-80	Euro Mortice
9	BE-B0472-100	Euro Mortice
10	BE-B0672-60	Euro Mortice
11	BE-B0672-80	Euro Mortice
12	BE-B0672-100	Euro Mortice
13	BE-B0872-60	Bathroom Mortice
14	BE-B0872-80	Bathroom Mortice
15	BE-B0872-100	Bathroom Mortice
16	BE-B0872-60M	Bathroom Latch
17	BE-B0872-80M	Bathroom Latch
18	BE-B0872-100M	Bathroom Latch
19	BE-B1072-60	Euro Mortice
20	BE-B1072-80	Euro Mortice
21	BE-B1072-100	Euro Mortice
22	BE-B1172-60	Euro Mortice
23	BE-B1172-80	Euro Mortice

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24	BE-B1172-100	Euro Mortice
25	BE-B2501-76	Euro Mortice
26	BE-B2510-76	Euro Mortice
27	BE-B2518-5	Mortice Latch
28	BE-B2518-8	Mortice Latch
30	BE-B5225-60	Bathroom Mortice
31	BE-B0472-60	Euro Mortice
32	BE-B0472-80	Euro Mortice
33	BE-B0472-100	Euro Mortice
34	BE-B0472-60M	Mortice Latch
35	BE-B0472-80M	Mortice Latch
36	BE-B0472-100M	Mortice Latch

**C. Imperial Range:**

SL No.	Reference	Type
1	E7000-063	Euro Mortice
2	E7000-076	Euro Mortice
3	G3000-063	Lever Mortice
4	G3000-076	Lever Mortice
5	G3000-101	Lever Mortice
6	G3004-063	Lever Mortice
7	G3004-076	Lever Mortice
8	G3004-101	Lever Mortice
9	G3006-076	Lever Mortice
10	G3011-127	Lever Mortice
11	G3012-151	Lever Mortice
12	G4040-076	Mortice Latch
13	G4050-063	Mortice Latch
14	G4050-076	Mortice Latch
15	G4050-101	Mortice Latch
16	G4052-063	Mortice Latch
17	G4052-076	Mortice Latch
18	G4053-063	Mortice Latch
19	G4053-076	Mortice Latch
20	G4053-101	Mortice Latch
21	G4054-127	Mortice Latch
22	G4055-151	Mortice Latch
23	G4060-080	Mortice Latch
24	G4060-100	Mortice Latch
25	G4060-127	Mortice Latch
26	G4060-151	Mortice Latch
27	G4072-063	Mortice Latch
28	G5000-063	Lever Mortice
29	G5000-076	Lever Mortice

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30	G5000-101	Lever Mortice
31	G5004-063	Lever Mortice
32	G5004-076	Lever Mortice
33	G5004-101	Lever Mortice
34	G5006-076	Lever Mortice
35	G5007-076	Lever Mortice
36	G5011-127	Lever Mortice
37	G5012-151	Lever Mortice
38	G5050-063	Lever Mortice
39	G5050-076	Lever Mortice
40	G5054-063	Lever Mortice
41	G5054-076	Lever Mortice
42	G7000-063	Euro Mortice
43	G7000-076	Euro Mortice
44	G7000-101	Euro Mortice
45	G7004-063	Euro Mortice
46	G7004-076	Euro Mortice
47	G7004-101	Euro Mortice
48	G7005-063	Euro Mortice
49	G7006-076	Euro Mortice
50	G7007-076	Euro Mortice
51	G7008-076	Euro Mortice
52	G7011-127	Euro Mortice
53	G7012-151	Euro Mortice
54	G7014-151	Euro Mortice
55	G7050-063	Oval Mortice
56	G7050-076	Oval Mortice
57	G7055-063	Oval Mortice
58	G7072-063	Euro Mortice
59	G7072-076	Euro Mortice
60	G7088-063	Dual Profile Mortice
61	G7088-076	Dual Profile Mortice
62	G7088-101	Dual Profile Mortice
63	G7130-063	Euro Mortice
64	G7130-076	Euro Mortice
65	G7134-063	Euro Mortice
66	G7134-076	Euro Mortice
67	G7174-076	Euro Mortice
68	G72/3000-076	Lever Mortice
69	G72/4053-063	Lever Mortice
70	G72/4053-076	Lever Mortice
71	G72/4053-101	Lever Mortice
72	G72/5000-076	Lever Mortice
73	G72/7000-063	Lever Mortice

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74	G72/7000-076	Lever Mortice
75	G72/7000-101	Lever Mortice
76	G72/7002-101	Lever Mortice
77	G72/7004-076	Lever Mortice
78	G72/7010-076	Lever Mortice
79	G72/8020-076	Bathroom Mortice
80	G72/8020-101	Bathroom Mortice
81	G72/8020RB-076	Bathroom Mortice
82	G72/8021-076	Bathroom Mortice
83	G72/8872-076	Bathroom Mortice
84	G7240-076	Euro Mortice
85	G7588-078	Oval Mortice
86	G7788-078	Euro Mortice
87	G8020-063	Bathroom Mortice
88	G8020-076	Bathroom Mortice
89	G8020-101	Bathroom Mortice
90	G8021-076	Bathroom Mortice
91	G8021-101	Bathroom Mortice
92	G8022-076	Bathroom Mortice
93	G8022-101	Bathroom Mortice
94	G8023-063	Bathroom Mortice
95	G8023-076	Bathroom Mortice
96	G8023-101	Bathroom Mortice
97	G8024-127	Bathroom Mortice
98	G8025-127	Bathroom Mortice
99	G8026-151	Bathroom Mortice
100	G8027-151	Bathroom Mortice
101	G8028-076	Bathroom Mortice
102	G8028-101	Bathroom Mortice
103	G8029-076	Bathroom Mortice
104	G8029-101	Bathroom Mortice
105	G8040-076	Mortice Latch
106	G8041-076	Mortice Latch
107	G8055-076	Bathroom Mortice
108	G8056-076	Bathroom Mortice
109	G8060-083	Mortice Latch
110	G8060-100	Mortice Latch
111	G8060-127	Mortice Latch
112	G8060-151	Mortice Latch
113	G8061-083	Mortice Latch
114	G8061-100	Mortice Latch
115	G8061-127	Mortice Latch
116	G8061-151	Mortice Latch
117	SC7004-063	Euro Mortice

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**Report Prepared For:** Banham Patent Locks Holding Ltd.

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118	SC7004-076	Euro Mortice
119	SC7006-076	Euro Mortice
120	Y7000-063	Euro Mortice
121	Y7000-076	Euro Mortice
122	Y7000-101	Euro Mortice

**Annex C – Declaration by the Applicant**

Reference No. 4791562009.1

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:

Stuart Costigan

Position:

Head of Products

Company:

Banham

Date:

17/01/2025

-----End of Report-----

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