

**Title:**

The Fire Resistance  
Performance of Timber  
Doorsets Incorporating  
Codelocks Mechanical and  
Electronic Pushbutton Locks

**WF Assessment Report No:**

**332711 issue 2**

**Prepared for:**

**Codelocks Ltd**

Castle Industrial Park,  
Kiln Road,  
Newbury,  
RG14 2EZ.

**Date:**

27<sup>th</sup> January 2014

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## Foreword

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This assessment report has been commissioned by Codelocks Ltd and relates to the fire resistance of mechanical and electronic locks.

This assessment 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, as appropriate.

This assessment uses established empirical methods of extrapolation and experience of fire testing similar products, 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 performance, if the elements were to be tested in accordance with EN1634.

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 defined scope presented in this assessment report relates to the behaviour of the proposed locks under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the locks in use.

This assessment has been prepared and checked by Certification Engineers 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

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**Objective** This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with Codelocks Ltd mechanical and electronic pushbutton locks.

**Report Sponsor** Codelocks Ltd

**Address** Castle Industrial Park, Kiln Road, Newbury, RG14 2EZ.

**Summary of Conclusions** Should the recommendations given in this report be followed, it can be concluded that previously fire tested (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) timber doorsets which have achieved 30 or 60 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, as discussed in this report, may be fitted with the various models of mechanical and electronic locks, as detailed within this report, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1 or BS EN 1634-1, on the basis of 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** 31<sup>st</sup> November 2024

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## Introduction

This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with the following Codelocks electronic and mechanical locks:

Reference	Description
<b>CL2255</b>	Electronic pushbutton lock
<b>CL4010</b>	Electronic pushbutton lock
<b>CL4510</b>	Electronic pushbutton lock
<b>CL5010</b>	Electronic pushbutton lock
<b>CL5010 B/B</b>	Electronic pushbutton lock
<b>CL5010 Audit Trail</b>	Electronic pushbutton lock
<b>CL5510</b>	Electronic pushbutton lock
<b>CL160</b>	Mechanical pushbutton lock
<b>CL155</b>	Mechanical pushbutton lock
<b>CL190 B/B</b>	Mechanical pushbutton lock
<b>CL255</b>	Mechanical pushbutton lock
<b>CL290 B/B</b>	Mechanical pushbutton lock
<b>CL410</b>	Mechanical pushbutton lock
<b>CL415</b>	Mechanical pushbutton lock
<b>CL510</b>	Mechanical pushbutton lock
<b>CL515</b>	Mechanical pushbutton lock
<b>CL610</b>	Mechanical pushbutton lock
<b>CL615</b>	Mechanical pushbutton lock

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

### 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 wall

It is 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.

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

The locks/latches shall not be fitted higher than 1400 mm from the centre of the tubular latch to the finished floor level of the surrounding floors.

Recessing for locks shall result in a tight fit, allowing for any intumescent protection where required.

**Latching** Where a lock considered by this report does not incorporate a self-latching mechanism e.g. deadlocks, then either the lock must be engaged or the doorsets must have been proven for the required period without the restraint of a latch/lock.

**Doorset details** It is assumed that the proposed hardware will be fitted to timber based doorsets which have previously been shown to be capable of providing 30 or 60 minutes integrity and insulation, where applicable, the critical aspects of the door construction are detailed later in this report.

Doorsets to which the hardware may be fitted shall have been previously proven by fire test (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) when incorporating a similarly sized lockset, for the relevant 30 or 60 minute integrity performance.

## Proposals

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It is proposed that previously fire tested (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) timber doorsets which have achieved 30 or 60 minutes integrity and, where applicable, insulation performance, as discussed later in this report, may be fitted with when fitted with Codelocks electronic and mechanical locks 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.

## Basic Test Evidence

**WF Test Report No. 327018** The test referenced WF Test Report No. 327018 and briefly described in the supporting data section of this report, describes a test conducted in accordance with BS EN 1634-1: 2008 which included two single-acting, single-leaf timber based doorsets referenced as Doorset A and Doorset B.

The test demonstrated the ability of the doorsets to provide 42 and 63 minutes integrity and insulation performance for doorset A and B respectively.

**WF Test Report  
No. 389550 iss 3**

2No. simulated timber doorsets incorporating a range of hardware were subjected to a test which utilised the heating and pressure conditions given in BS EN 1363-1: 2012, to determine its fire resistance performance.

The test demonstrated the ability of the doorsets to provide 37 and 56 minutes integrity and insulation performances for doorsets A and B respectively.

**WF Test Report  
No. 397957**

A simulated timber doorset incorporating a range of hardware were subjected to a test which utilised the heating and pressure conditions given in BS EN 1634-1, to determine its fire resistance performance.

The test demonstrated the ability of the doorset to provide 63 minutes integrity and insulation performances.

**WF Test Report  
No. 412582**

3No. simulated timber doorsets incorporating a range of hardware were subjected to a test which utilised the heating and pressure conditions given in BS EN 1363-1: 2012 with additional guidelines from BS EN 1634-1: 2014+A1:2018, to determine its fire resistance performance.

The test demonstrated the ability of the doorsets to provide 41, 60 and 31 minutes integrity and insulation performances for doorsets A, B and C respectively.

## Assessed Performance

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### Electronic Pushbutton locks

#### Tested locks

The performance of the doorsets included in the test report referenced WF No. 327018 is cited to demonstrate the only means of restraint and positive contribution made by the tested CL2255 and CL5010 electronic pushbutton units and tubular latches towards the performance of the full-scale doorset, when mounted in both 30 and 60 minute timber doorset constructions.

Doorset A included in test WF Report No. 327018 was a single acting, single leaf doorset with a 925 x 2050 x 44 mm thick graduated density chipboard core and 8 mm thick hardwood lippings. The leaf was hung within a softwood frame with a single 15 x 4 mm perimeter intumescent fire seal positioned centrally within the rebate.

Doorset B included in test WF Report No. 327018 was a single acting, single leaf doorset with a 935 x 2040 x 54 mm thick graduated density chipboard core and 8 mm thick hardwood lippings. The leaf was hung within a hardwood frame a 2No. 15 x 4 mm perimeter intumescent fire seal positioned centrally within the rebate 10 mm apart.

Both the doorsets were fitted with two Codelock Ltd, Electronic Code Locksets. The lower lockset was referenced 'CL 2255' and the upper lockset was referenced 'CL 5010'. The pushbutton units to the unexposed face and battery units to the exposed face in all cases.

The doorsets were installed such that they opened towards the heating conditions of the test and were latched only by the lower lockset for the duration of the test. The latchbolt was engaged for the test duration.

In both instances the tubular latches and door preparations were provided with additional protection in the form of intumescent material. The material was 1 mm thick Interdens intumescent sheet and was used to line through holes made in the door leaf to accommodate the locks. Intumescent acrylic mastic was added to the holes provided for their mounting bolts. The tubular latch assembly was provided with intumescent sheet protection in the form of 1 mm thick Interdens behind the latch forend and behind the keep plate to the door frame. It is therefore a requirement of this assessment that in all instances, the tested locks must be provided with this same level and type of intumescent protection.

On reviewing the observations taken from the tests report, it's clear that there were no integrity failures associated with the locks fitted to Doorset A (E30), for a test duration of 42 minute, at which time the doorset was blanked off to allow the testing of the Doorset B (E60) to continue.

Sustained flaming was recorded at the top edge of Doorset B at 63 minutes. The test was discontinued after 66 minutes without failure associated with or coincident to the locks under test.

Additional testing as identified in WF Report No. 389550 and WF Report No. 397957 was undertaken to evaluate alternative pushbutton/battery units, the inclusion of a 2 mm neoprene gasket to the reverse of the surface mounted units, and confirm the validity of the testing from both directions. The testing was small-scale testing of simulated 30 minute and 60 minute doorsets only as the ability of the latches to retain the full-scale doors had already been established. The specification of the simulated doorsets was that tested full-scale under WF Report No. 327018, as follows:

- WF Report No. 389550:
  - Doorset A (30 minutes) and Doorset B (60 minutes)

<b>Description</b>	<b>Reference</b>
Digital Lockset with tubular latch, keypad to unexposed face	CL5510
Digital Lockset with tubular latch, keypad to exposed face	CL5510
Digital Lockset with tubular latch, keypad to unexposed face	CL4510
Digital Lockset with tubular latch, keypad to exposed face	CL4510

On reviewing the observations taken from the tests report, it's clear that there were no integrity failures associated with the locks fitted to Doorset A (E30), for a test duration of 37 minute, at which time the doorset was blanked off to allow the testing of the Doorset B (E60) to continue.

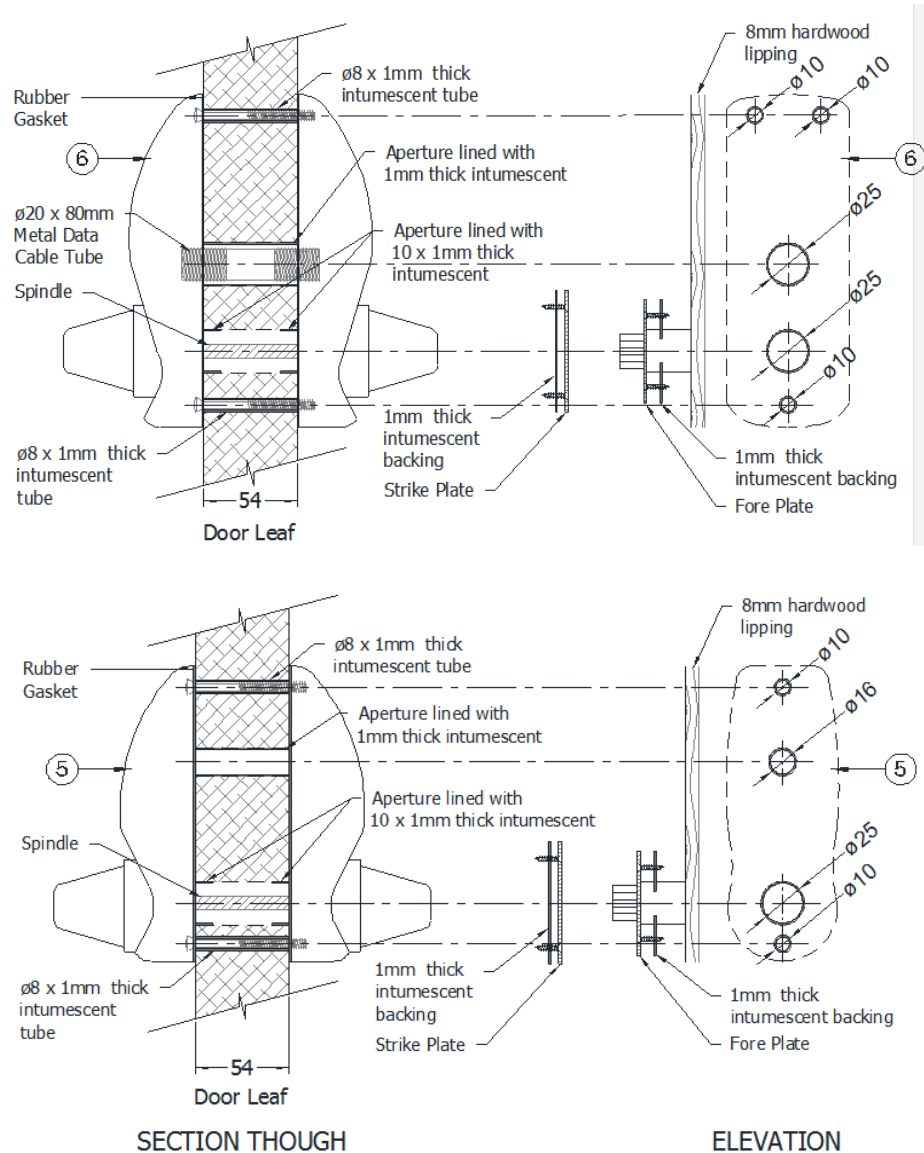
Sustained flaming was recorded at the 56 minutes at the CL4510 unit (pushbuttons to exposed face). The flaming was clearly associated with the handle and not the forend/strikeplate location.



- WF Report No. 397957:
  - Doorset A (60 minutes)

Description	Reference
Digital Lockset with tubular latch, keypad to unexposed face	CL4510
Digital Lockset with tubular latch, keypad to exposed face	CL4510
Digital Lockset with tubular latch, keypad to unexposed face	CL5510
Digital Lockset with tubular latch, keypad to exposed face	CL5510

The basic doorset specification was as the previous 60 minute test, but the intumescent protection to both the CL4510 and CL5510 pushbutton and battery handles and preparations within the door were upgraded with graphite intumescent tubes to the fixing holes, as follows:



#### Intumescent bedding material

Manufacturer	:	Code Locks Ltd.
Reference material	:	Code Locks Fire Kit. Interdens intumescent strips.
ø 10mm cross bore (fixing bolt)	:	2 No bore holes lined with 8 mm diameter x 1 mm thick graphite based intumescent tube.
ø 16 mm cross bore (data cable)	:	Lined with 1 x mm thick Interdens sheet.
ø 25 mm cross bore (spindle)	:	Lined with 2 No. 10 mm wide x 1 mm thick interdens strips.
Latch fore plate	:	Bedded on one layer of 1 mm Interdens sheet.
Strikeplate	:	Bedded on one layer of 1 mm Interdens sheet.

On reviewing the observations taken from the tests report, it's clear that there were no integrity failures associated with the locks fitted to the 60 minute Doorset A for a test duration of 63 minute, at which time the test was terminated without failure.

WF Test Report No. 389550 is considered to provide suitable justification for the use of the CL4510 and CL5510 with 30 minute timber/mineral-based doorsets from either direction, including the use of neoprene gaskets.

WF Test Report No. 397957 is considered to provide suitable justification for the use of the CL4510 and CL5510 with 60 minute timber/mineral-based doorsets from either direction, including the use of neoprene gaskets.

Equally by testing the CL4510 and CL5510 from both directions it is reasonable to assume that the mounting with the pushbutton units on the exposed face would not have a detrimental effect on the performance of the originally tested CL2255 and CL5010 units. Their use in both directions is therefore approved.

#### Alternative models

The CL2255, CL5010, CL4510 and CL5510 models have been proven by test as suitable for use with previously proven 30 and 60 minute timber based doorsets. These models were chosen for test on the basis that they are considered to represent the ranges of electronic locks proposed in this appraisal in terms of the largest and smallest models, but also because they were felt to be the most onerous models based on their components, and method of installation in terms of preparation of the door leaf.

This report considers the performance of other models of electronic locks taken from the following ranges:

#### CL5010 audit trail

The CL5010 Audit Trail is essentially the same unit as the standard CL5010 with additional electronic components allowing it to store data for retrieval with appropriate software. In terms of its installation and the required door preparation it is identical to the tested unit. As the additional functions included in this model are not considered influential on its contribution to the fire performance of the proposed timber based doorsets to which it may be fitted, a high level of confidence in the model's ability can be taken.

## CL4000

From the CL4000 range, the CL4010 is also considered by this report based on its similarities to the tested locks. Outwardly the unit has a smaller, ten button key pad, like the CL2000 range but has a larger body and lever handle operation like the CL5000 range. The model includes the same tubular mortice latch as the CL5000 range and requires the same door preparation as the CL2000 range. As this model sits between the two tested units in terms of size and shares preparation and latching components with them, it is reasonable to consider that its performance can be confidently assessed from them.

As with all other locks considered by this assessment, it is a requirement that the installation of the CL4010 shall be subject to the use of the appropriate addition intumescent protection to the lock preparation of the door and to the latch forend and keep plate. The performance of the CL4010 is therefore positively appraised.

## Intumescent protection

In all instances the electronic locks shall be provided with intumescent protection in the form of:

- 30 and 60 minutes

Manufacturer	:	Code Locks Ltd.
Reference material	:	Code Locks Fire Kit.
i. ø 10mm cross bore (fixing bolt)	:	Interdens intumescent strips.
ii. ø 16 mm cross bore (data cable)	:	2 No bore holes lined with 8 mm diameter x 1 mm thick graphite based intumescent tube.
iii. ø 25 mm cross bore (spindle)	:	Lined with 1 x mm thick Interdens sheet.
iv. Latch fore plate	:	Lined with 2 No. 10 mm wide x 1 mm thick Interdens strips either side of the latch body.
v. Strikeplate	:	Bedded on one layer of 1 mm Interdens sheet.
	:	Bedded on one layer of 1 mm Interdens sheet.

Additionally for 60 minute applications the perimeter intumescent fire seals within the frame rebate or door edge shall by-pass the strikeplate or forend by a minimum of 4.5 mm on each (excluding the latchbolt lip).

## Mechanical Pushbutton locks

### Tested locks

As discussed previously, the performance of the doorsets included in the test report referenced WF No. 327018 is cited to demonstrate the only means of restraint and positive contribution made by the tubular latches towards the performance of the full-scale doorset, when mounted in both 30 and 60 minute timber doorset constructions. Therefore their ability to retain the doors in the closed position is not in doubt.

Additional testing as identified in WF Report No. 412582 was undertaken to evaluate alternative mechanical pushbutton and handle units with neoprene gaskets. The testing was small-scale testing of simulated 30 minute and 60 minute doorsets, with the specification of the simulated doorsets as that tested full-scale under WF Report No. 327018, as follows:

- o Doorset A (30 minutes) and Doorset B (60 minutes):

Description	Reference
Digital Lockset with tubular latch, keypad to unexposed face	CL155
Digital Lockset with tubular latch, keypad to exposed face	CL155
Digital Lockset with tubular latch, keypad to unexposed face	CL515
Digital Lockset with tubular latch, keypad to exposed face	CL515

- o Doorset C (60 minutes):

Description	Reference
Digital Lockset with tubular latch, keypad to unexposed face	CL610
Digital Lockset with tubular latch, keypad to exposed face	CL610

On reviewing the observations taken from the tests report, it's clear that there were no integrity failures associated with the locks fitted to Doorset A (E30), for a test duration of 41 minute, at which time the doorset was blanked off to allow the testing of the Doorset B (E60) to continue.

Sustained flaming was recorded at the 60 minutes at both CL515 units.

#### Intumescent bedding material

Manufacturer	:	Code Locks Ltd.
Reference	:	Code Locks Fire Kit.
Material	:	Interdens intumescent strips.
i. ø 10mm cross bore (fixing bolt)	:	2 No. bore holes (CL515 and CL155) and 3No. bore holes (CL610) lined with 8 mm diameter x 1 mm thick graphite based intumescent tube.
ii. ø 30 mm cross bore (spindle)	:	Lined with 2 No. 10 mm wide x 1 mm thick Interdens strips.
iii. Latch fore plate	:	Bedded on one layer of 1 mm Interdens sheet.
iv. Tubular latch body	:	Partially wrapped in 28 mm x 1 mm Interdens sheet
v. Strikeplate	:	Bedded on one layer of 1 mm Interdens sheet.

On reviewing the observations taken from the tests report, it's clear that there were no integrity failures associated with the CL610 locks fitted to the 60 minute Doorset C for a test duration of 67 minute, at which time the test was terminated without failure.

WF Test Report No. 389550 is considered to provide suitable justification for the use of the CL155 and CL515 as tested with 30 minute timber/mineral-based doorsets from either direction with a neoprene gasket.

WF Test Report No. 397957 is considered to provide suitable justification for the use of the CL155, CL515 and CL610 as tested with 60 minute timber/mineral-based doorsets from either direction with a neoprene gasket.

It has been identified that additional intumescent protection was incorporated to the latchbolts on all locks, with 1 mm of Interdens sheet material partially wrapping the tubular latch body to a length of 28 mm:



None of the tubular latches tested previously incorporated intumescent in this location, furthermore as the protection only 1mm thick and extends only partially into the mortice it does not provide any real additional protection to the spindle hole which is the real area of risk, it is therefore reasonable to assume that this additional intumescent strip is unnecessary and can be omitted in general use.

### CL610 –30 minutes

The CL610 was successfully tested in a 60 minute doorset as identified in WF Report No. 412582 (Doorset C); however, it has not been subject to 30 minute testing.

Reviewing the various tests undertaken with both the mechanical and electronic pushbutton units and tubular latches, it is clear that the 60 minute applications are noticeably more vulnerable of the two applications, with none of the 30 minute tests showing signs of flaming prior to the samples being blank off without failure well beyond the 30 minute classification period.

It is also the case that the intumescent protection is identical for both the 30 and 60 minute application, consequently there is an element of comfort that the intumescent protection is more than adequate for the 30 minute applications.

Therefore it would be reasonable to conclude that it should CL610 mechanical pushbutton handles and tubular latches be incorporated within a 30 minute timber/mineral-based doorset it would not have a detrimental impact on the fire resisting performance.

### Alternative models

The CL155, CL515 and CL610 models have been proven by test as suitable for use with previously proven 30 and 60 minute timber based doorsets. These models were chosen for test on the basis that they are considered to represent the ranges of mechanical locks proposed in this appraisal in terms of the largest and smallest models, but also because they were felt to be the most onerous models based on their components, and method of installation in terms of preparation of the door leaf.

This report considers the performance of other models of mechanical locks as follows:

### CL155, CL160, and CL255

The testing on the CL155 is considered the base justification for this family of mechanical locks.

The CL155, CL160 and CL255 are all manufactured from zinc alloy, all require the same preparation within the face of the door leaf, and operate with the tubular latches tested.

The tested CL155 is considered suitably similar to the proposed CL155, CL160 and CL255, with the changes relating to the keypad design, handle operation (lever or knob designs), finish or other mechanical functions restricted to the wholly surface mounted elements and therefore are considered to have little or no impact on the fire resistance performance.

The CL155, CL160 and CL255 mechanical locks can therefore be positively appraised for use on both 30 and 60 minute timber based doorsets.

### CL410, 415, CL510 and 515

The CL410, 415 and CL510 are considered similar to the tested CL515 as they all require a similar preparation within the face of the door leaf and vary only slightly in size:

- o CL410/415 161 mm high x 41 mm wide
- o CL510/515 177 mm high x 48 mm wide

The tested CL515 is considered suitably similar to the proposed CL155, CL160 and CL255, with the changes relating to the keypad design, handle operation (lever or knob designs), finish or other mechanical functions restricted to the wholly surface mounted elements and therefore are considered to have little or no impact on the fire resistance performance.

The CL410, 415, CL510 and 515 mechanical locks can therefore be positively appraised for use on both 30 and 60 minute timber based doorsets.

### Intumescent protection

In all instances the mechanical pushbutton locks shall be provided with intumescent protection in the form of:

- 30 and 60 minutes

Manufacturer	:	Code Locks Ltd.
Reference material	:	Code Locks Fire Kit.
vi. ø 10mm cross bore (fixing bolt)	:	Interdens intumescent strips.
vii. ø 25 mm cross bore (spindle)	:	2 No bore holes lined with 8 mm diameter x 1 mm thick graphite based intumescent tube.
viii. Latch fore plate	:	Lined with 2 No. 10 mm wide x 1 mm thick Interdens strips either side of the latch body.
ix. Strikeplate	:	Bedded on one layer of 1 mm Interdens sheet.
	:	Bedded on one layer of 1 mm Interdens sheet.

Additionally for 60 minute applications the perimeter intumescent fire seals within the frame rebate or door edge shall by-pass the strikeplate or forend by a minimum of 4.5 mm on each (excluding the latchbolt lip).

## General Details

### Tubular latches

The same basic tubular latch with a 12 mm latchbolt throw is used throughout the Codelocks mechanical and electronic range, and is available with a 50 mm, 60 mm or 70 mm backset. Both 60 mm and 70 mm backsets have been tested successfully, consequently as the 50 mm backset requires less material to be removed from the door its use is not considered detrimental to the performance of the doorsets.

The tested forends were a maximum 57 mm high x 30 mm wide and the strikeplates a maximum 70 x 40 mm (including latchbolt lip), therefore these are the maximum size latches approved generally for both 30 and 60 minutes.

The tubular locks are available as either a latch or lockable variant (with minimum 11.5 mm bolt throw), both are acceptable, but where the variant without a sprung latchbolt is fitted then either the lock must be engaged or the doorsets must have been proven for the required period without the restraint of a latch/lock.

### B/B

The mechanical and electronic locks have the 'B/B' option, i.e. for the pushbutton keypads to be incorporated 'back-to-back' on both faces of the door.

The following specific models are 'back-to-back' variants (although other locks also have the 'B/B' as an option):

Reference	Description	Note
<b>CL5010 B/B</b>	Electronic pushbutton lock	B/B variant of CL5010
<b>CL190 B/B</b>	Mechanical pushbutton lock	B/B variant of CL155
<b>CL290 B/B</b>	Mechanical pushbutton lock	B/B variant of CL255

As the pushbutton units have been tested in both directions, and requires no changes to the preparation to the door or the fixings used to retain the handles/pushbutton units, this option is not considered detrimental to the performance of the fire resisting doorsets and therefore is approved for general use on both 30 and 60 minute doorsets.

### K/O

A further option is for the handles to incorporate a key override 'K/O' to the pushbutton unit.



This option only requires a key cylinder to be incorporated within the handle of the wholly surface mounted element of the pushbutton unit; it requires no changes to the preparation within the door or the fixings used to retain the handles/pushbutton units. Consequently it is reasonable to assume that this will not have any detrimental impact on the performance of the locks, therefore is approved for general use on both 30 and 60 minute doorsets.

## 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 hardware to be used safely.

The following requirements of the doorset are however considered to be essential:

- The doorset shall be of a timber construction and must have provided the required 30 or 60 minute integrity performance when tested at a UKAS accredited laboratory in accordance with BS 476: Part 22: 1987 or EN 1634-1, be assessed for the required period by Warringtonfire, Chiltern International Fire or BM TRADA 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 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 -  $450\text{kg/m}^3$  for 30 minute doorsets and  $640\text{kg/m}^3$  for 60 minute doorsets.
- b) The minimum thickness of door leaves shall be 44 mm for 30 minute doorsets and 54 mm for 60 minute doorsets.
- c) Door leaves of solid lignocellulosic construction in the lock area
- d) Lipping density -  $640\text{kg/m}^3$ .

The locks may only be fitted to fire resistance timber based doorsets for 30 or 60 minute performances (as relevant) of previously proven ability when fitted with a mortice lock.



## Conclusions

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Previously fire tested (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) timber doorsets which have achieved 30 or 60 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, as discussed in this report, may be fitted with the referenced Codelocks electronic and mechanical locks, as detailed in this report, without detracting from the overall performance of the doorset.

## Review (22<sup>nd</sup> November 2019)

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It has been confirmed by Codelocks Ltd that there have been no changes to the specification, materials or manufacturing location of the mechanical and electronic locks considered in the original appraisal referenced WF Assessment Report No. 332711 issued 27<sup>th</sup> January 2014.

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 mechanical and electronic locks 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. 332711, 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 Codelocks 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

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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 Codelocks Ltd 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 31<sup>st</sup> November 2024, 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.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1 or BS EN 1634-1, on the basis of 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.

## Summary of Primary Supporting Data

### WF Test Report No. 327018

Test report relating to the performance of two fully insulated, single-acting, single-leaf, timber doorsets incorporating various items of building hardware, when subjected to a test in accordance with BS EN 1634-1: 2008 to determine their fire resistance performance.

For the purposes of the test the doorsets were referenced Doorset A and Doorset B.

Doorset A had overall dimensions of 2095 mm high by 995 mm wide and incorporated a door leaf of overall dimensions 2055 mm high by 925 mm wide by 44 mm thick. The door leaf was hung within a softwood door frame on three stainless steel hinges. The door leaf was formed from a graduated density chipboard core with hardwood lippings to the vertical edges.

Doorset B had overall dimensions of 2085 mm high by 1010 mm wide and incorporated a door leaf of overall dimensions 2040 mm high by 935 mm wide by 54 mm thick. The door leaf was hung within a hardwood door frame on three stainless steel hinges. The door leaf was formed from a graduated density chipboard core with hardwood lippings to the vertical edges.

In both cases the doorsets were fitted with two Codelock Ltd, Electronic Code Locksets. The lower lockset was referenced 'CL 2255' and the upper lockset was referenced 'CL 5010' The doorsets were installed such that they opened towards the heating conditions of the test, and in each case, were latched only by the lower lockset for the duration of the test.

The specimens satisfied the test requirements for the following periods:

		Doorset A	Doorset B
<b>Integrity</b>	Sustained Flames	42 minutes*	63 minutes
	Gap Gauge	42 minutes*	66 minutes <sup>#</sup>
	Cotton Pad	42 minutes*	63 minutes
<b>Insulation</b>		42 minutes*	63 minutes

\*Doorset blanked off to allow the test to continue.

<sup>#</sup>The test duration. The test was discontinued after a period of 66 minutes.

Test date : 11<sup>th</sup> March 2013

Test sponsor : Codelocks Ltd

**WF Test Report**  
**No. 389550**  
**iss 3**

Test report relating to an investigation which utilised the heating and pressure conditions given in BS EN 1363-1: 2012 the full requirements of the Standard were not, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement.

The purpose of the test was to provide an indication of the performance on a range of **Codelocks Ltd** doorset hardware, under fire test conditions, when fitted to 30 and 60 minute fire rated timber based doorset. The test assembly consisted of two small scale simulated doorsets, which for the purposes of the test were reference as Doorset A and Doorset B.

**Doorset A** had overall dimensions of 1490 mm high by 656 mm wide incorporating a door leaf and softwood jambs. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges The Doorset incorporated the following hardware:

Item Number	Description	Reference
6	Digital Lockset with tubular latch, keypad to unexposed face	CL5510
6	Digital Lockset with tubular latch, keypad to exposed face	CL5510
7	Digital Lockset with tubular latch, keypad to unexposed face	CL4510
7	Digital Lockset with tubular latch, keypad to exposed face	CL4510

**Doorset B** had overall dimensions of 1490 mm high by 664 mm wide incorporating a door leaf and hardwood jambs. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges The Doorset incorporated the following hardware:

Item Number	Description	Reference
6	Digital Lockset with tubular latch, keypad to unexposed face	CL5510
6	Digital Lockset with tubular latch, keypad to exposed face	CL5510
7	Digital Lockset with tubular latch, keypad to unexposed face	CL4510
7	Digital Lockset with tubular latch, keypad to exposed face	CL4510

The test assembly formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1: 2012.

The specimen satisfied the test requirements for the following periods:

<b>Integrity</b>	<b>Doorset A</b>	<b>Doorset B</b>
<b>Sustained flaming</b>	37 minutes*	56 minutes
<b>Gap gauge</b>	37 minutes*	61 minutes#
<b>Cotton Pad</b>	37 minutes*	56 minutes

\*Doorset blanked off to allow the test to continue.

#The test duration. The test was discontinued after a period of 66 minutes.

Warringtonfire Limited was not involved with the sampling of the hardware.

Test date : 9<sup>th</sup> October 2017

Test Sponsors : Codelocks Ltd

**WF Test Report  
No. 397957**

Test report relating to an investigation which utilised the heating and pressure conditions given in BS EN 1634-1:2014 the full requirements of the Standard were not, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement.

The purpose of the test was to provide an indication of the performance on a range of **Codelocks Ltd**

Doorset hardware, under fire test conditions, when fitted to a 60 minute fire rated timber based doorset.

The Doorset had overall dimensions of 1490 mm high by 1012 mm wide incorporating a 54 mm thick door leaf hung on two stainless steel hinges within a hardwood frame. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges only. The Doorset incorporated the following hardware:

Item Number	Description	Reference
5	Digital Lockset with tubular latch, keypad to unexposed face	CL4510
5	Digital Lockset with tubular latch, keypad to exposed face	CL4510
6	Digital Lockset with tubular latch, keypad to unexposed face	CL5510
6	Digital Lockset with tubular latch, keypad to exposed face	CL5510

The test assembly formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1: 2012. The calculated furnace atmospheric pressure differential relative to the laboratory atmosphere at the top of the doorset was 12 Pa.

The specimen satisfied the test requirements for the following periods:

<b>Integrity</b>	
<b>Sustained flaming</b>	63 minutes*
<b>Gap gauge</b>	63 minutes*
<b>Cotton Pad</b>	63 minutes*

\*Doorset blanked off to allow the test to continue.

#The test duration. The test was discontinued after a period of 66 minutes.

Warringtonfire Limited was not involved with the sampling of the hardware.

Test date : 23<sup>rd</sup> April 2018

Test Sponsors : Codelocks Ltd

**WF Test Report  
No. 412582 iss  
3**

Test report relating to an investigation which utilised the heating and pressure conditions given in BS EN 1363-1: 2012 with additional guidelines from BS EN 1634-1: 2014+A1:2018, the full requirements of the Standards were not met, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement.

The purpose of the test was to provide an indication of the performance of various keypad faced locksets when fitted in previously proven fire rated doorsets. For the purpose of the test the doorsets were referenced doorset A, B and C.

Doorset A had overall nominal dimensions of 1488 mm high by 480 mm wide incorporating a door leaf which was 1446 mm high by 412 mm wide by 44 mm thick. The door leaf was of a Halspan core with hardwood lippings to the vertical edges. The leaf was hung within a softwood frame on two steel hinges. The doorset was installed with the following keypad faced locksets:

Reference	Item Reference	Position(viewed from unexposed face)	Product reference	Orientation
A1	11	Top left lock	CL155	KeyPad to exposed face
A2	11	Top right lock	CL155	KeyPad to unexposed face
A3	6	Bottom left lock	CL515	KeyPad to exposed face
A4	6	Bottom right lock	CL515	KeyPad to unexposed face

Doorset B had overall nominal dimensions of 1488 mm high by 480 mm wide incorporating a door leaf which was 1446 mm high by 410 mm wide by 54 mm thick. The door leaf was of a Halspan core with hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame on two steel hinges. The doorset was installed with the following keypad faced locksets:

Reference	Item Reference	Position(viewed from unexposed face)	Product reference	Orientation
B1	11	Top left lock	CL155	KeyPad to exposed face
B2	11	Top right lock	CL155	KeyPad to unexposed face
B3	6	Bottom left lock	CL515	KeyPad to exposed face
B4	6	Bottom right lock	CL515	KeyPad to unexposed face

Doorset C had overall nominal dimensions of 1488 mm high by 480 mm wide incorporating a door leaf which was 1446 mm high by 410 mm wide by 54 mm thick. The door leaf was of a Halspan core with hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame on two steel hinges. The doorset was installed with the following keypad faced locksets:

Reference	Item Reference	Position(viewed from unexposed face)	Product reference	Orientation
C1	7	Top left lock	CL2255	KeyPad to exposed face
C2	7	Top right lock	CL2255	KeyPad to unexposed face
C3	10	Bottom left lock	CL610	KeyPad to exposed face
C4	10	Bottom right lock	CL610	KeyPad to unexposed face

The test assembly formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1: 2012. The furnace atmospheric pressure was controlled to simulate pressure conditions from BS EN 1363-1: 2012 Clause 5.2. The simulated pressure was 13.8 Pa at the head of the doorset. The test was discontinued after 39 minutes.

The specimen satisfied the test requirements for the following periods:

<b>Integrity</b>	<b>Doorset A</b>	<b>Doorset B</b>	<b>Doorset C</b>
<b>Sustained flaming</b>	41 minutes	60 minutes	31 minutes
<b>Gap gauge</b>	41 minutes*	67 minutes#	67 minutes#
<b>Cotton Pad</b>	41 minutes	60 minutes	31 minutes

\*Doorset blanked off without failure to allow the test to continue.

#The test duration. The test was discontinued after a period of 66 minutes.

Warringtonfire Limited was not involved with the sampling of the hardware.

Test date : 14<sup>th</sup> May 2019

Test Sponsors : Codelocks Ltd



## Declaration by Codelocks Ltd

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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:

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For and on behalf of:  
  
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## Signatories

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Responsible Officer (Issue 2)

R. Anning\* - Principal Certification Engineer



Approved (Issue 2)

M Tolan\* - Certification Engineer

\* For and on behalf of Warringtonfire.

Report Issued: 27<sup>th</sup> January 2014

Issue 2 (29<sup>th</sup> November 2019):

- Report reviewed and revalidated.
- Multiple mechanical and electronic pushbutton locks scope modified and added to.

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

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