MCGRATH LOCKS PTY LTD, LSC SECURITY SOLUTIONS PTY LTD AND FIRECORE PTY LTD

MASTER DOOR HARDWARE ASSESSMENT

McGrath door hardware

Prepared for

Report sponsor: McGrath Locks Pty Ltd, LSC Security solutions Pty Ltd and Firecore Pty Ltd

Products: McGrath door hardware

Report number: 120207

Revision: DHAR2.0

Issued date: 30 October 2025 Expiry date: 31 January 2029

JENSEN HUGHES

Quality management

<table>
<tr><th>Revision</th><th>Date</th><th colspan="3">Revision description</th></tr>
<tr><td rowspan="3">DHAR1.0</td><td rowspan="3">23 January 2025</td><td colspan="3">Initial issue</td></tr>
<tr><td>Prepared</td><td>Reviewed</td><td>Authorised</td></tr>
<tr><td>Pius Jerome</td><td>Mohammed Mutafi</td><td>Alim Rasel</td></tr>
<tr><td rowspan="3">DHAR2.0</td><td>Issue:
30 Oct 2025</td><td colspan="3">Adding a range of McGrath door hardware to be installed in Firecore doorsets.</td></tr>
<tr><td rowspan="2">Expiry:
31 Jan 2029</td><td>Prepared</td><td>Reviewed</td><td>Authorised</td></tr>
<tr><td>Blake Nitschke</td><td>Alim Rasel</td><td>Alim Rasel</td></tr>
<tr><td colspan="5">Note-
The stated expiry date is dependent on the continued validity of report FCO 3428 throughout the duration of this report's validity period. Therefore, it is essential to read this report in conjunction with FCO 3428</td></tr>
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Jensen Hughes Fire Testing Pty Ltd
ABN 81 050 241 524
Formerly Warringtonfire Australia Pty Ltd[1]

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1.0 Introduction

This report documents the findings of the assessment to determine the expected fire resistance level (FRL) of McGrath door hardware installed in Firecore doorsets in accordance with AS 1530.4:2014[2] and AS 1905.1:2015[3] (as applicable).

Jensen Hughes performed this assessment at the request of the report sponsors listed in Table 1.

Table 1 Report sponsor details

Report sponsor	Address
McGrath Locks Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2.0 Baseline test data for full scale doorset

Firecore doorsets were further tested in accordance with AS 1530.4:2005 and AS 1530.4:2014 and achieved the FRLs listed in Table 2

Table 2 Referenced test reports

Test reference	Doorset description	Reference doorset	Reference doorset	FRL
FSV 1382a	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick	A	AS 1530.4:2005	-/120/30
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick	B		-/240/30
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick	C		-/240/30
FCO 3428	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick	D	AS 1530.4:2014	Up to -/120/30
	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick	E		Up to -/240/30
	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick	F		

Notes:

+ It should be noted that the performance of the doorset varied based on their construction and test standards. The relevant doorsets were referenced in section 5.0 as defined in this table.

[2] Standards Australia, 2014, Methods for fire tests on building materials, components and structures – Part 4: Fire-resistance tests for elements of construction, AS 1530.4:2014, Standards Australia, NSW.
[3] Standards Australia, 2015, Components for the protection of openings in fire-resistant walls Fire-resistant doorsets, AS 1905.1:2015, Standards Australia, NSW.

3.0 Hardware considered in this report

A range of door hardware was considered in this report. The considered hardware is listed in Table 3 and Table 4.

Table 3 List of locksets with or without additional furniture in Firecore doors

Item	Model	Description	Backset	Reference test/assessment
1.	McGrath Locks ML-Windsor Smart Lock	Smart lock installed with Dormakaba M 2902 mortice lock	95 mm	FRT210244 R1.0 FAS230019 DHAR 1.0 FRT240065 R1.0
		Smart lock with MS2602 mortice lock	60 mm	
		Smart Lock with McGrath locks 60/70 adjustable tubular SS latch backset and standard strike plate	60 mm 70 mm	
		Smart Lock with Lockwood 530 tubular brass latch with 60, 70 & 127 backset and standard strike plate	60 mm 70 mm 127 mm	FRT220234 R1.0 FAS220380 DHAR 1.0
		Smart lock installed with 127mm McGrath tubular latch	127 mm	FRT251978 R1.0
2.	McGrath locks ML Hamilton smart lock	Smart lock with a MS2902 Mortice lock	60 mm	FRT251978 R1.0 FRT251979 R1.0
		Smart lock with a MS2602 mortice lock	60 mm	
		Smart lock installed with the MS2602 mortice lock with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole.	60 mm	
		Smart lock installed with the MS2902 mortice lock with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole.	60 mm	
		Smart lock installed with 127 mm McGrtath tubular latch	127 mm	
		Smart lock installed with McGrath adjustable tubular latch with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole	60 mm 70 mm 127 mm	
3.	McGrath Locks ML Hamilton FM575 outdoor Smart Lock	Smart lock with the McGrath 60/70 adjustable tubular SS latch	60 mm 70 mm	FRT240065 R1.0 FRT240066 R1.0 FRT210244 R1.0 FAS230019 DHAR 1.0

Item	Model	Description	Backset	Reference test/assessment
4.	McGrath Locks ML-Stafford Smart Lock	Smart lock installed with the McGrath tubular latch, with a scar plate over an unfilled redundant 54 mm diameter cylindrical lock hole.	60 mm	FRT251978 R1.0 FRT251979 R1.0
			70 mm	
			127 mm	
		Smart lock installed with the Dormakaba MS2602 mortice with a scar plate over a redundant 54mm diameter cylindrical lock hole.	60 mm	
		Smart lock installed with the Dormakaba MS2902 mortice with a scar plate over a redundant 54mm diameter cylindrical lock hole.	95 mm	
		Smart lock installed with the McGrath tubular latch without the scar plate added	60 mm	
			70 mm	
			127 mm	
		Smart lock installed with the Dormakaba MS2602 mortice without the scar plate added	60 mm	
		Smart lock installed with the Dormakaba MS2902 mortice without the scar plate added	95 mm	
5.	McGrath Locks ML-Bardon Smart Lock	Smart lock installed onto the F05 ANSI mortice without the dead bolt, with the scar plate added to a gain a 2-hour FRL.	70 mm	FRT250547 R1.0
		Smart lock installed onto the F05 ANSI mortice without the dead bolt, without the scar plate added.	70 mm	

Table 4 List of door closers

Item	Model	Description	Reference test/assessment
1.	McGrath Locks ML-DSW-100N	Door closer installed with slide arm	FRT220234 R1.0

4.0 Additional supporting data considered in this report

The proposed hardware was assessed based on supporting test data listed in Table 5 and in compliance with AS 1905.1:2015.

Table 5 Additional supporting test data

Test report	Test date	Test scale	Doorset description	Tested hardware	Test duration	Test standard
FRT210244 R1.0	6 September 2021	Pilot scale	Single leaf, TVC30 core Firecore doorset, nominally 38 mm thick	+ DAC systems smart lock with Dormakaba MS2900 series mortice lock + AC7303 door closer + Dormakaba ball bearing SS hinges 100 mm × 75 mm × 2.5 mm hinges.	121 minutes	AS 1530.4:2014
FRT220234 R1.0	6 February 2023	Pilot scale	Single leaf, TVC40 core Firecore doorset, nominally 48 mm thick	+ McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch with a 70 mm backset + Dormakaba Ball Bearing Hinges stainless steel 2.5 mm x 100 mm x 100 mm + McGrath Locks ML-DSW-100N door operator + McGrath Locks ML-DSW-100N door operator - slide arm track	121 minutes	AS 1530.4:2014
FRT240066 R1.0	16 May 2024	Pilot scale	Single leaf, TVC30 core Firecore doorset, nominally 38 mm thick	+ ML Hamiliton FM575 outdoor smart lock with McGarth MS2902-SSS mortice lock. + AC7303 door closer	120 minutes	AS 1530.4:2014

Test report	Test date	Test scale	Doorset description	Tested hardware	Test duration	Test standard
				+ Assa Abloy SS304/24 100 mm × 75 mm hinges.		
FRT240065 R1.0	7 June 2024	Pilot scale	Single leaf, TVC30 core Firecore doorset, nominally 38 mm thick	+ ML Hamiliton FM575 outdoor smart lock with McGarth locks adjustable backset tubular latch. + Neptune 280 series maglock + Assa Abloy SS304/24 100 mm × 75 mm fixed pin hinges.	120 minutes	AS 1530.4:2014
FRT251978 R1.0	15 August 2025	Pilot scale	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	+ McGrath ML Stafford Smart Lock with the 60/70 mm backset McGrath tubular latch, and McGrath Scar Plate, over a redundant 54 mm diameter cylindrical hole	121 minutes	AS 1530.4:2014
FRT251979 R1.0	22 August 2025	Pilot scale	Single leaf plywood faced Firecore mini doorset, nominally 38 mm thick	+ McGrath ML Stafford Smart Lock with a dormakaba MS2902 mortice and McGrath Scar Plate, over a redundant 54 mm diameter cylindrical hole	120 minutes	AS 1530.4:2014
FRT250547 R1.0	17 April 2025	Pilot scale	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	+ ML Bardon digital lock with F54 ANSI mortice and scar plate + Lockwood fixed pin butt hinges (SSS304/24)	120 minutes	AS 1530.4:2014

5.0 Assessment

5.1 Door hardware assessment in accordance with AS 1905.1:2015

The performance of Firecore doors in accordance with AS 1530.4:2005 and AS 1530.4:2014 was established based on a number of fire resistance tests. The outcomes of these tests and a subsequent assessment report – FCO 3428 – are summarised in Table 2. It should be noted that FCO 3428 was issued by Infrastructure Technologies on 24 December 2021. Jensen Hughes has not verified the outcome of this assessment report. However, for the purpose of this report, it is assumed that the outcome is accurate. This report must be read in conjunction with test and assessment report listed in Table 2. Therefore, the validity of this report is conditional upon the validity of FCO 3428. Any changes or updates to FCO 3428 may therefore impact the outcome of this report.

As per section 4 of AS 1905.1:2015, door hardware can be assessed based on additional pilot scale or full-scale tests when conducted in accordance with AS 1530.4. The proposed hardware listed in section 3.0 was tested in pilot scale. The test outcomes are summarised in Table 5. Based on the above, the proposed hardware is assessed in this assessment.

This assessment is conditional upon the operational characteristics and materials of the doorset complying with section 2 of AS 1905.1:2015. The field of application of the hardware included in this report is defined by the field of application of the doorset that the door hardware is installed on.

5.2 Applicability of test data to AS 1530.4:2014

It is noted that some full scale or pilot scale tests were conducted in accordance with AS 1530.4:1985, AS 1530.4:1990, AS 1530.4:1997 or AS 1530.4:2005. The test requirements stipulated in these standards are generally similar to the stipulation of AS 1530.4:2014. However, there are some variations in instrumentation and failure criteria. Therefore, each test was reviewed on a case-by-case basis and the outcome was assessed in accordance with AS 1530.4:2014.

5.3 Lockset with or without additional furniture

5.3.1 Assessment based on pilot/full scale test

Section 4.5 of AS 1905.1:2015 permits the assessment of locksets based on a pilot scale or full-scale fire resistance test in accordance with AS 1530.4. As such, in addition to the full-scale tests listed in Table 2, pilot scale tests listed in Table 5 form the basis of this assessment.

It is noted that, some locksets included additional furniture. In such case, the furniture was tested as part of the pilot scale tests. Any variation in surface mounted furniture is discussed in section 5.3.2.

AS 1530.4:2014 states that either sustained flaming on the surface of the unexposed face for 10 seconds or longer, ignition of a cotton pad, gap gauge failure, or the latching mechanism being disengaged at the end of the test constitute integrity failure. From the pilot scale tests, the attained duration of integrity performance of each lockset based on the above criteria is noted.

As the proposed locksets with or without additional furniture (as applicable) did not cause failure up to the noted timeframes in the pilot scale tests, substituting the locksets with or without additional furniture (as applicable) for the hardware tested in the referenced doorsets listed in Table 2 is not expected to affect their performance. Based on the above, the proposed locksets listed in Table 3 are positively assessed.

5.3.2 Variation in backset

It is proposed that backset of locksets will be varied. AS 1530.4:2014, clause 7.9.7 states that:

(a) The backset of the mortice lockset or latchset may be reduced.

(b) The backset of a cylindrical lockset or latchset may be varied, provided no additional encroachment is made on any structural framework of the door leaf and the fixing method remains identical.

Based on the above, the reduction in backset of mortice lock is positively assessed.

In the referred test, FRT240066 R1.0, McGrath ML Hamilton FM575 outdoor smart lock was tested with a mortice lock with 95 mm backset. It performed up to 120 minutes without failure. Giving that the mortice lock installation requires removal of significant amount of the door core comparing to the tubular latch. So replacing it with a tubular latch of 127 mm is not expected to have any deteriorating effect on the doorset. Hence, it is positively assessed.

For cylindrical locksets, the fixing method remained identical to the tested tubular latch. Based on the above, variation in the backset of the cylindrical lock is also positively assessed.

5.3.3 Conclusion

Based on the discussion above, it is the opinion of this laboratory that the proposed locksets listed in Table 3 are capable of achieving the FRLs listed in Table 6 – if they are fitted in the referenced Firecore doorsets.

Table 6 Fire resistance level of locksets installed in Firecore doorset

Item	Model	Description / Additional Furniture	Reference doorset as listed in Table 2	FRL
1.	McGrath Locks ML-Windsor Smart Lock	Smart lock installed with Dormakaba MS 2902 mortice lock with 95 mm backset	A, B, C, D, E, F	-/120/30*
		Smart lock with MS2602 mortice lock with 60 mm backset	A, B, C, D, E, F	-/120/30*
		Smart Lock with McGrath locks 60/70 adjustable tubular SS latch backset and standard strike plate	A, B, C, D, E, F	-/120/30*
		Smart Lock with Lockwood 530 tubular brass latch with 60, 70 & 127 backset and standard strike plate	B, C, E, F	-/120/30*
		Smart lock installed with 127mm McGrath tubular latch	A, B, C, D, E, F	-/120/30*
2.	McGrath locks ML Hamilton smart lock	Smart lock with a MS2902 Mortice lock with 60 mm backset	A, B, C, D, E, F	-/120/30*
		Smart lock with a MS2602 mortice lock with 60 mm backset	A, B, C, D, E, F	-/120/30*

Item	Model	Description / Additional Furniture	Reference doorset as listed in Table 2	FRL
		Smart lock installed with the MS2602 mortice lock with 60 mm backset, with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole.	A, B, C, D, E, F	-/120/30*
		Smart lock installed with the MS2902 mortice lock with 60 mm backset, with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole.	A, B, C, D, E, F	-/120/30*
		Smart lock installed with 127 mm McGrtath tubular latch	A, B, C, D, E, F	-/120/30*
		Smart lock installed with McGrath adjustable tubular latch with 60, 70 and 127 mm backset, with the added scar plate over an unfilled redundant 54mm diameter cylindrical lock hole	A, B, C, D, E, F	-/120/30*
3.	McGrath Locks ML Hamilton FM575 outdoor Smart Lock	Smart lock with the McGrath 60/70 adjustable tubular SS latch	A, B, C, D, E, F	-/120/30*
4.	McGrath Locks ML-Stafford Smart Lock	Smart lock installed with the McGrath tubular latch with 60, 70 and 127 mm backset, with a scar plate over an unfilled redundant 54 mm diameter cylindrical lock hole.	A, B, C, D, E, F	-/120/30*
		Smart lock installed with the Dormakaba MS2602 mortice with 60 mm backset, with a scar plate over a redundant 54mm diameter cylindrical lock hole.	A, B, C, D, E, F	-/120/30*
		Smart lock installed with the Dormakaba MS2902 mortice with 95 mm backset, with a scar plate over a redundant 54mm diameter cylindrical lock hole.	A, B, C, D, E, F	-/120/30*
		Smart lock installed with the McGrath tubular latch with 60, 70 and 127 mm backset, without the scar plate added	A, B, C, D, E, F	-/120/30*
		Smart lock installed with the Dormakaba MS2602 mortice	A, B, C, D, E, F	-/120/30*

Item	Model	Description / Additional Furniture	Reference doorset as listed in Table 2	FRL
		with 60 mm backset, without the scar plate added		
		Smart lock installed with the Dormakaba MS2902 mortice with 95 mm backset, without the scar plate added	A, B, C, D, E, F	-/120/30*
5.	McGrath Locks ML-Bardon Smart Lock	Smart lock installed onto the F05 ANSI mortice without the dead bolt with the scar plate added to a gain a 2-hour FRL.	A, B, C, D, E, F	-/120/30*
		Smart lock installed onto the F05 ANSI mortice without the dead bolt, without the scar plate added.	A, B, C, D, E, F	-/120/30*

Notes:

* Limited to one-way FRL, as the batteries were installed on the exposed side in the tested system

+ The listed FRL is the maximum FRL assigned to the hardware. The system FRL needs to be determined in conjunction with the FRL of the referenced doorset. The lowest index between the FRL of the hardware and doorset will be the applicable FRL of any particular combination. Therefore, this report needs to be read in conjunction with the referenced reports listed in Table 2.

+ For items assessed without the scar plate, they should only be used where there are no pre-existing holes present.

5.4 Door Closer with slider arm

5.4.1 Assessment based on pilot scale tests.

Section 4.5 of AS 1905.1:2015 permits the assessment of door closers based on a pilot scale or full-scale fire resistance test in accordance with AS 1530.4. As such, in addition to the full-scale tests listed in Table 2, pilot scale tests listed in Table 5 form the basis of this assessment.

AS 1530.4:2014 states that either sustained flaming on the surface of the unexposed face for 10 seconds or longer, ignition of a cotton pad, gap gauge failure, or the latching mechanism being disengaged at the end of the test constitutes integrity failure. From the pilot scale tests, the attained duration of integrity performance of the closer with slide arm based on the above criteria is noted.

As the proposed closer did not cause failure up to the noted timeframe in the pilot scale tests, substituting them for the hardware tested in the referenced doorsets listed in Table 2, is not expected to affect their performance. Based on the above, the proposed door closers listed in Table 4 are positively assessed.

5.4.2 Conclusion

Based on the discussion above, it is the opinion of this laboratory that the proposed door closers listed in Table 4 are capable of achieving the FRLs listed in Table 7– if they are fitted in the referenced Firecore doorsets.

Table 7 Fire resistance level of door closer installed in Firecore doorset

Item	Model	Description	Reference doorset as listed in Table 2	FRL
1.	McGrath Locks ML-DSW-100N	Door closer installed with slide arm	B, C, E, F	-/120/30

6.0 Summary of assessments

The door hardware assessed in this report and their reference outcome table are summarised in Table 8.

Table 8 Summary of assessment

Hardware	Reference table
Locksets	Table 6
Door closer	Table 7

7.0 Conditions and validity

- The conclusions of this assessment may be used to directly assess the fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- Because of the nature of fire resistance testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy of the result. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.
- The assessment can therefore only relate to the actual prototype test specimens, testing conditions and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture.
- This assessment is based on information and experience available at the time of preparing this report. The published procedures for the conduct of tests and the assessment of the test results are the subject of constant review and improvement and it is recommended that this report be reviewed by Jensen Hughes before the end of the validity date.
- The information in this report must not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in this report. All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.
- The data, methodologies, calculations and results documented in this report specifically relate to the tested specimen/s and must not be used for any other purpose. This report may only be reproduced in full. Extracts or abridgements must not be published without permission from Jensen Hughes.