

Fire resistance of Firecore TVC doorsets incorporating various Raven seals in accordance with AS 1530.4-2014 and AS 1905.1-2015

Assessment Report

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Commercial-in-confidence

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1 Introduction

This report provides the assessment of fire resistance of Firecore TVC-30 Mini and TVC-40 Maxi doorsets incorporating various Raven products in accordance with AS 1530.4-2014 and AS 1905.1-2015.

This report is prepared for the purpose of meeting the evidence of suitability requirements of NCC Volumen 1 Schedule 5 Clauses 2 (b) and 2 (c) as appropriate for FRL.

This report reviews and confirms the extent to which the reference fire resistance tests listed in section 2 meet the requirements of the standard fire test standards listed in section 4 of the report. The proposed variations to the tested construction presented in section 3 are subject to an analysis in Appendix B and the conclusions are presented in Section 5 of this report.

The field of applicability of the results of this assessment report is presented in Section 6 and subject to the requirements, validity and limitations of Sections 7, 8 and 9.

2 Supporting Data

This assessment report refers to various full scale test reports to support the performance of the target doorsets and they are listed below in Table 1;

Table 1 – Field of application of Firecore doorsets

Report Referenced	Test Standard	Description
FCO-3428 Shortform	AS 1530.4-2014 and AS 1905.1-2015	An assessment of fire resistance of Firecore single and double leaf doorsets in accordance with AS 1530.4-2014 and AS 1905.1-2015.

The report listed in Table 1 was prepared by CSIRO, North Ryde and sponsored by Firecore Pty Ltd.

To support the use of alternate hardware to that covered by the report listed in Table 1, reference is made to various additional full scale and pilot scale test reports to support the performance of various Raven branded hardware when fitted to the target doorsets listed in Table 1. These reports are listed in Table 2 below.

Table 2 – Reports referenced to support additional hardware

Raven product type	Raven product code	Description	Test report reference	Test Standard
Automatic Door Seal, Silicone Gaskets	RP8Si	Fully mortised automatic door bottom seal	FSP 0952	AS 1530.4- 1997
	RP35Si	Surface mounted/semi mortised automatic door bottom seal	FSP 1293	AS 1530.4- 2005
	RP38Si	Surface mounted/semi mortised automatic door bottom seal	FSP 0992	AS 1530.4- 1997
	RP99Si	Surface mounted/semi mortised and fully mortised automatic door bottom seal	FSP 1316	AS 1530.4- 2005
	RP99Si	Surface mounted/semi mortised and fully mortised automatic door bottom seal	FSP 1327	AS 1530.4- 2005
Automatic Door Seal,	RP126Si	Surface mounted/semi mortised automatic door bottom seal	EWFA 35184300	AS 1530.4- 2005

Raven product type	Raven product code	Description	Test report reference	Test Standard
Silicone Gaskets	RP127Si	Fully mortised automatic door bottom seal	EWFA 35612900	AS 1530.4- 2005
Bottom Door Seal	RP51Si	Surface mounted heavy duty sweep door bottom seal	FSP 1330	AS 1530.4- 2005
	RP74	Surface mounted nylon brush door bottom seal	FSP 1330	AS 1530.4- 2005
Frame mounted perimeter seal	RP10Si	Surface mounted perimeter seal	FSP 1293	AS 1530.4- 2005
	RP24Si	Surface mounted perimeter seal	EWFA 35612900	AS 1530.4- 2005
	RP78Si	Surface mounted perimeter seal	FSP 1293	AS 1530.4- 2005
	RP87Si	Surface mounted perimeter seal	FSP 1327	AS 1530.4- 2005
	RP94Si	Surface mounted perimeter seal	FSP 1327	AS 1530.4- 2005
Door rebate perimeter smoke seals	RP120	Surface mounted perimeter seal	FSP 1316	AS 1530.4- 2005
	RP124	Surface mounted perimeter seal	FSP 1330	AS 1530.4- 2005
Threshold plates and ramps	RP28	Threshold plate	FSP 1330	AS 1530.4- 2005
	RP95	Threshold plate	FSP 1327	AS 1530.4- 2005
	RP115	Threshold plate	FSP 1316	AS 1530.4- 2005

The tests FSP 0952, FSP 0992, FSP 1293, FSP 1316, FSP 1327 and FSP 1330 were carried out by CSIRO, North Ryde and sponsored by Firecore Pty Ltd.

The tests EWFA 35184300, and EWFA 35612900 were carried out by Exova Warrington Fire, VIC and sponsored by Firecore Pty Ltd and Raven Products Pty Ltd.

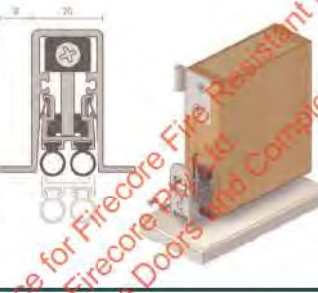
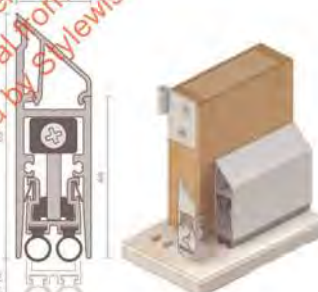
3 Proposed Variations

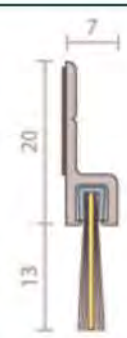
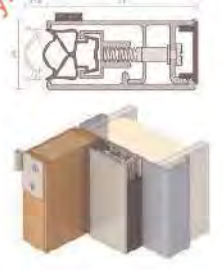
The proposed construction shall be single and double leaf Firecore doorsets listed in Table 1 and subject to the variations below:

- Inclusion of the automatic door seal, bottom door seal, frame mounted perimeter seal, door rebate perimeter seals, threshold plates and ramps are listed in Table 2
- Inclusion of similar Raven seals to those tested in Table 2, as listed in Tables 3 and 4

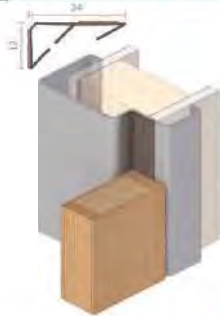
Table 3: Raven door seals

Raven product type	Product code	Image	Variation from tested Prototype
Automatic Door Seal, Silicone Gaskets	RP6Si		As tested in FSP 0952 but smaller in dimensions
	RP8Si		As tested in FSP 0952
	RP35Si		As tested in FSP 1293 but also include the option of semi mortised arrangement
	RP38Si		As tested in FSP 0992 but also include the option of a surface mounting arrangement
	RP70Si		The same specification as the specimen tested in FSP 0992, except it is 1mm thicker and 1mm shallower

Raven product type	Product code	Image	Variation from tested Prototype
Automatic Door Seal, Silicone Gaskets	RP99Si		As tested in FSP 1327 but also include the option of Surface mounted and Fully mortised arrangements
	RP126Si		As tested in EWFA 35184300 but also include the option of a surface mounting arrangement
	RP127Si		As tested in EWFA 35612900
	RP128Si		The same specification as the specimen tested in EWFA 35184300, except for an extra metal cover and surface mounted
Bottom Door Seal	RP51Si		As tested in FSP 1330

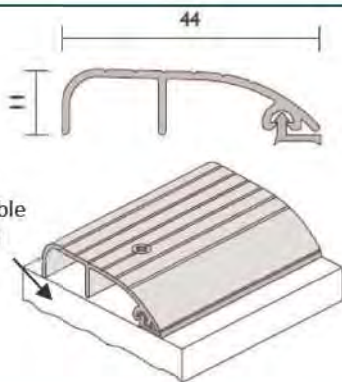
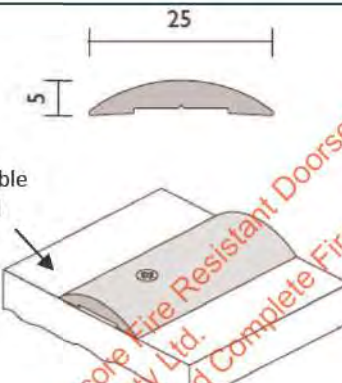
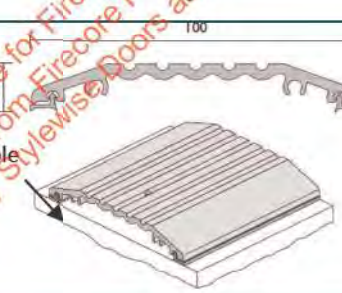
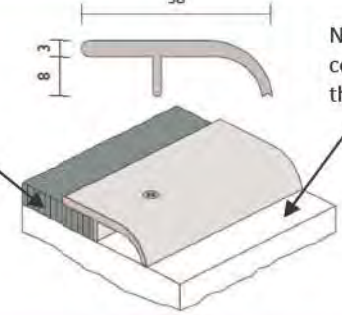
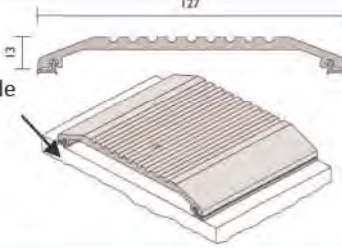
Raven product type	Product code	Image	Variation from tested Prototype
Bottom Door Seal	RP74		As tested in FSP 1330
	RP74f		The same specification as the specimen tested in FSP 1330, except with an extra medium temperature film barrier
Frame mounted perimeter seal	RP10Si		As tested in FSP 1293
	RP24Si		As tested in EWFA 35612900
	RP78Si		As tested in FSP 1293
	RP87Si		As tested in FSP 1327

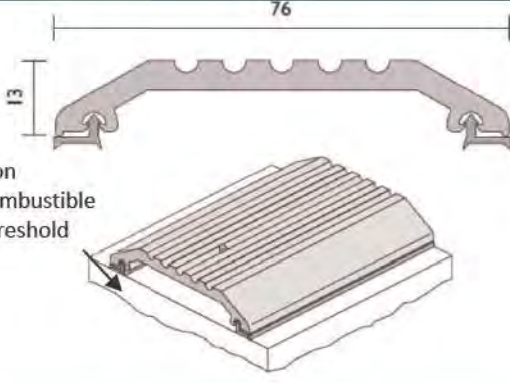
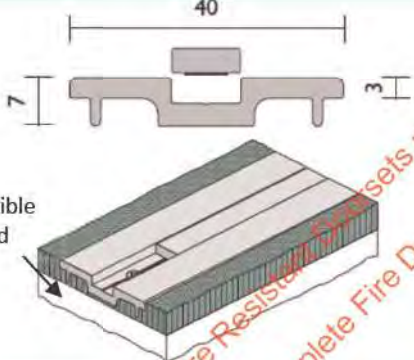
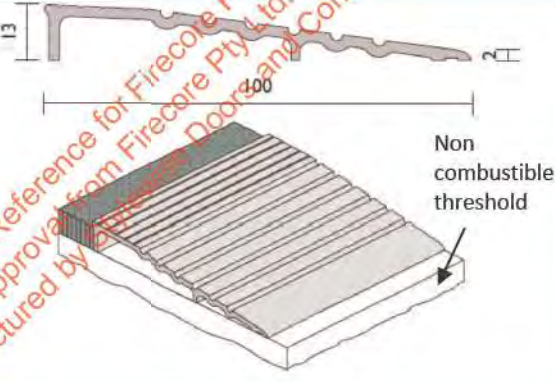
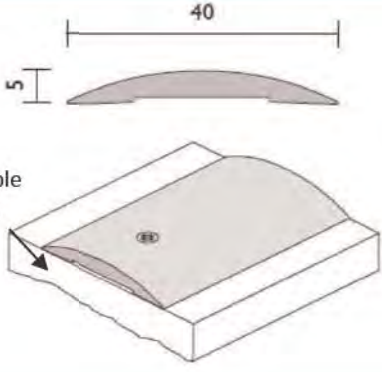
Frame mounted perimeter seal	RP93Si		The same material as the specimen tested in FSP 1327, except no PVC cover strip
	RP78HSi		The same material as the specimen tested in FSP 1327, except no PVC cover strip
	RP118Si		The same material as the specimen tested in FSP 1327, except no PVC cover strip
	RP47Si		The same body material as the specimen tested in FSP 1327. The same Silicon gasket component as the specimen tested FSP 1327
	RP94Si		As tested in FSP 1327

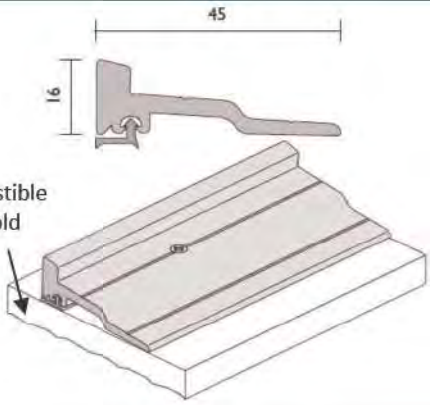
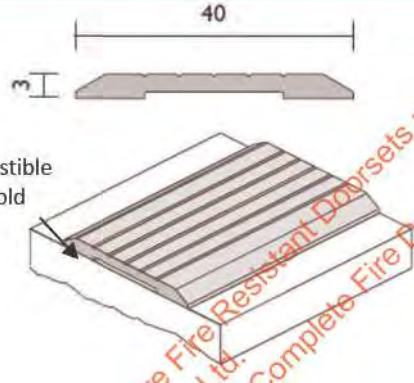
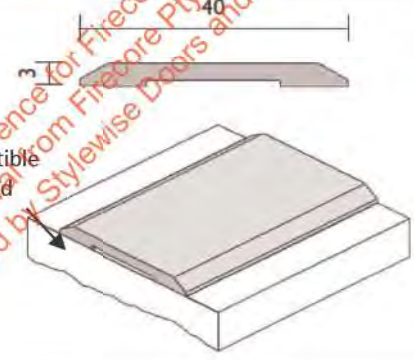
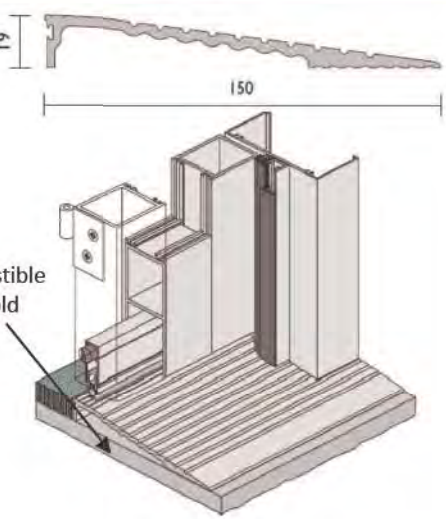
Raven product type	Product code	Image	Variation from tested Prototype
Door rebate perimeter smoke seals	RP120		As tested in FSP 1316
	RP124		As tested in FSP 1330
	RP150		The same material as the specimen tested in FSP 1316

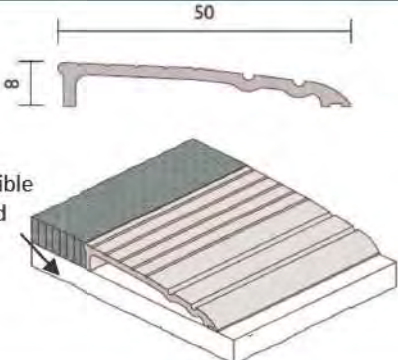
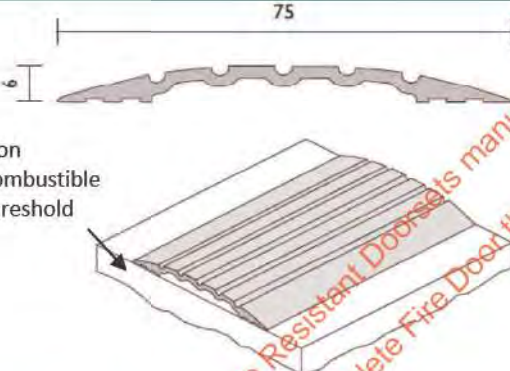
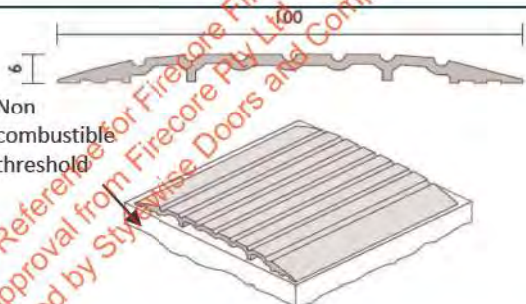
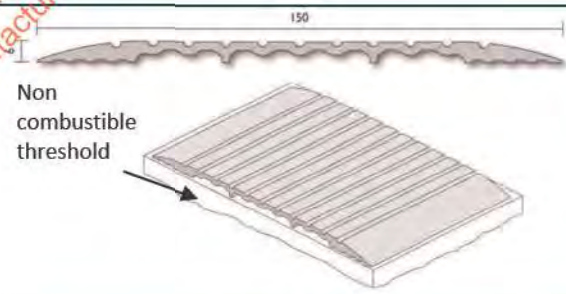
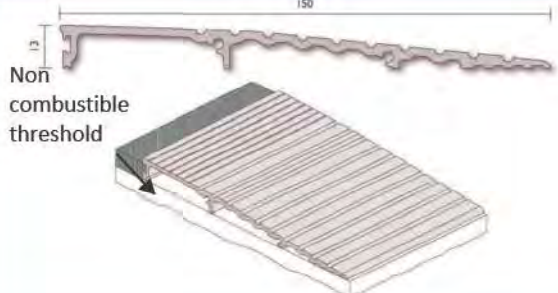
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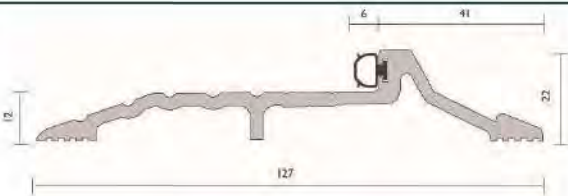
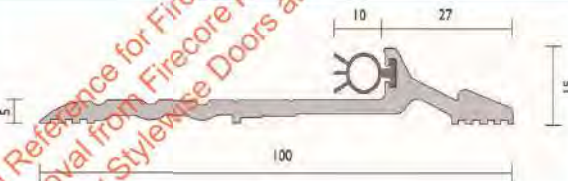
Table 4: Raven Threshold Plates

Raven product type	Product code	Image	Variation from tested Prototype
Threshold plates and ramps Threshold plates and ramps	RP4B	 Non combustible threshold	As tested in FSP 1330 but smaller
	RP13	 Non combustible threshold	As tested in FSP 1330 but smaller and has no PVC gasket
	RP19	 Non combustible threshold	As tested in FSP 1330 but smaller
	RP27	 Non combustible threshold Carpet	As tested in FSP 1330 but smaller
	RP28	 Non combustible threshold	As tested in FSP 1330

Raven product type	Product code	Image	Variation from tested Prototype
Threshold plates and ramps	RP29		As tested in FSP 1330 but smaller
	RP66		As tested in FSP 1330 but smaller
	RP77		As tested in FSP 1330 but smaller and has no PVC gasket
	RP82		As tested in FSP 1330 but smaller

Raven product type	Product code	Image	Variation from tested Prototype
Threshold plates and ramps	RP91	 Non combustible threshold	As tested in FSP 1330 but thicker
	RP95	 Non combustible threshold	As tested in FSP 1327
	RP96	 Non combustible threshold	As tested in FSP 1327 but smaller
	RP98	 Non combustible threshold	As tested in FSP 1330 but larger

Raven product type	Product code	Image	Variation from tested Prototype
Threshold plates and ramps	RP112	 Non combustible threshold	As tested in FSP 1330 but smaller
	RP115	 Non combustible threshold	As tested in FSP 1316
	RP116	 Non combustible threshold	As tested in FSP 1330 but smaller
	RP137	 Non combustible threshold	As tested in FSP 1330 but thinner and wider
	RP138	 Non combustible threshold	As tested in FSP 1330 but wider

Raven product type	Product code	Image	Variation from tested Prototype
Threshold plates seals	RP97Si		As tested in FSP 1330 but larger and includes the same silicon gasket material as tested in FSP 1327
	RP109Si		As tested in FSP 1330 but larger and includes the same silicon gasket material as tested in FSP 1327
	RP111Si		As tested in FSP 1330 but larger and includes the same silicon gasket material as tested in FSP 1327
	RP110Si		As tested in FSP 1330 but larger and includes the same silicon gasket material as tested in FSP 1327
	RP117Si		As tested in FSP 1330 but larger and includes the same silicon gasket material as tested in FSP 1327

4 Referenced Standards

Standards:

AS 1530.4-2014

Methods for fire tests on building materials, components and structures Part 4: Fire resistance tests of elements of building construction.

AS 1905.1-2015

Components for the protection of openings in fire-resistant walls Part 1: Fire-resistant doorsets.

5 Conclusion

On the basis of the analysis presented in this report, it is the opinion of this Accredited Testing Laboratory that the tested and assessed prototypes described in Section 2 when varied as described in Section 3 will achieve the Fire Resistance stated below when submitted to a standard fire test in accordance with the test methods referenced in Section 4 and subject to the requirements of section 7, the validity of section 8 and limitation of section 9.

Table 5 - Fire-Resistance of Raven products when fitted to Firecore doorsets

Seal Type	Product Code	Description	FRL	FRL
			Mini Door (Single leaf)	Maxi Door (Single/Double leaf)
Automatic Door Seal, Silicone Gaskets	RP6Si	Fully mortised automatic door bottom seal	-/120/30	-/240/30
	RP8Si		-/120/30	-/240/30
	RP127Si		-/60/30	-/60/30
	RP35Si	Surface mounted/semi mortised automatic door bottom seal	-/120/30	-/240/30
	RP38Si		-/120/30	-/240/30
	RP126Si		-/120/30	-/120/30
	RP70Si	Fully mortised automatic door bottom seal	-/120/30	-/240/30
	RP99Si	Surface mounted/semi mortised and fully mortised automatic door bottom seal	-/120/30	-/240/30
	RP128Si	Surface mounted automatic door bottom seal	-/120/30	-/120/30
Bottom Door Seal	RP51Si	Surface mounted heavy duty sweep door bottom seal	-/120/30	-/120/30
	RP74	Surface mounted nylon brush door bottom seal	-/120/30	-/120/30
	RP74f		-/120/30	-/120/30
Frame mounted perimeter seal	RP10Si	Surface mounted perimeter seal	-/120/30	-/240/30
	RP24Si		-/120/30	-/120/30
	RP78Si		-/120/30	-/240/30
	RP87Si		-/120/30	-/240/30
	RP87HSi		-/120/30	-/240/30
	RP93Si		-/120/30	-/240/30
	RP78HSi		-/120/30	-/240/30
	RP118Si		-/120/30	-/240/30
	RP47Si		-/120/30	-/240/30
	RP94Si		-/120/30	-/240/30
Door rebate perimeter smoke seals	RP120	Rebate perimeter seal	-/120/30	-/180/30
	RP124		-/120/30	-/120/30
	RP150	Rebate perimeter seal	-/120/30	-/180/30

Seal Type	Product Code	Description	FRL	FRL
			Mini Door (Single leaf)	Maxi Door (Single\Double leaf)
Threshold plates and ramps	RP4B	Threshold plate	-/120/30	-/240/30
	RP13		-/120/30	-/240/30
	RP19		-/120/30	-/240/30
	RP27		-/120/30	-/240/30
	RP28		-/120/30	-/240/30
	RP29		-/120/30	-/240/30
	RP66		-/120/30	-/240/30
	RP77		-/120/30	-/240/30
	RP82		-/120/30	-/240/30
	RP91		-/120/30	-/240/30
	RP95		-/120/30	-/240/30
	RP96		-/120/30	-/240/30
	RP98		-/120/30	-/240/30
	RP112		-/120/30	-/240/30
	RP115		-/120/30	-/240/30
	RP116		-/120/30	-/240/30
	RP137		-/120/30	-/240/30
	RP138		-/120/30	-/240/30
	RP97Si	Threshold plate seals	-/120/30	-/240/30
	RP109Si		-/120/30	-/240/30
	RP111Si		-/120/30	-/240/30
	RP110Si		-/120/30	-/240/30
	RP117Si		-/120/30	-/240/30

6 Direct Field of Application of Results

The results of this assessment are applicable to door hardware fitted to single and double leaf doorset in wall constructions exposed to fire from either direction.

7 Requirements

It is required that the supporting construction is tested or assessed to achieve the required FRL up to the required FRL based on the assessed design in accordance with AS 1530.4.

The threshold ramps greater than 15mm in height shall be fitted on a non-combustible threshold.

For doors, it is required that the hardware is designed and configured to meet the requirements of AS 1905.1-2015 Section 2 and the doorset be installed in accordance with AS 1905.1-2015 Section 5.

Any variations with respect to size, constructional details, loads, stresses, edge or end conditions that are other than those identified in this report, may invalidate the conclusions drawn in this report.

8 Term of Validity

This assessment report will lapse on 30th April 2027. Should you wish us to re-examine this report with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this assessment in the light of new knowledge.

9 Limitations

The conclusions of this assessment report may be used to directly assess the fire resistance performance under such conditions, but it should be recognised that a single test method will not provide a full assessment of the fire hazard under all fire 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. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

This assessment report does not provide an endorsement by CSIRO of the actual products supplied to industry. The referenced 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 preparation. The published procedures for the conduct of tests and the assessment of test results are the subject of constant review and improvement and it is recommended that this report is reviewed on or, before, the stated expiry date.

The information contained in this assessment report shall 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.