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Fire assessment report

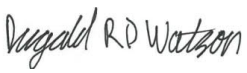
The fire resistance performance of linear gap sealing systems in walls if tested in accordance with AS 1530.4:2014

Sponsor: Soudal Australia

Report number: 23751 Revision: R5.0 Reference number: FAS210137

Issued date: 3 June 2021 Expiry date: 30 June 2026

Quality management

Version	Date	Information about the report			
23751-00	Issue: 27/07/2009	Reason for issue	Initial issue		
			Prepared by	**Reviewed by**	
		Name	Mandeep Kamal	K Nicholls	
23751-01	Issue: 31/03/2016	Reason for issue	Updated referenced standard		
			Prepared by	**Reviewed by**	
		Name	D Nicholson	K Nicholls	
23751-02	Issue: 17/06/2016	Reason for issue	Revised to correct typographical error		
			Prepared by	**Reviewed by**	
		Name	D Nicholson	S Hu	
23751-03	Issue: 04/07/2018	Reason for issue	Revised to update table is section 5		
			Prepared by	**Reviewed by**	
		Name	Omar Saad	Hon Wong	
23751 R5.0	Issue: 03/06/2021	Reason for issue	Revalidated for a further 5 years and variations in the wall types, thickness and density added		
			Prepared by	**Reviewed by**	**Authorised by**
	Expiry: 30/06/2026	**Name**	Dugald Watson	Omar Saad	Omar Saad
		Signature			

*R4.0 was skipped.

Executive summary

This report documents the findings of the assessment undertaken to determine the expected fire resistance level of linear gap sealing systems masonry walls if tested in accordance with AS 1530.4:2014 and assessed in accordance with AS 4072.1:2005.

The products assessed include Soudafoam FR, Firecryl FR, Soudaseal FR and Silirub FR fire rated gap sealants with PE backer rods. The systems assessed were various horizontal and vertical linear gaps in walls protected with combinations of the products identified above.

The analysis in sections 5 to 6 of this report found that the proposed systems, together with the described variations, are expected to achieve the fire resistance level as shown in Table 1, if tested in accordance with AS 1530.4:2014.

Table 1 Variations and assessment outcome

ID	Minimum wall thickness (mm)	Gap width (mm)	Seal depth (mm)	Sealant reference	Backing material	Seal position	FRL
A	200	30	200	Soudafoam FR	None	Both faces	-/120/120
B	200	25	25	Firecryl FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
C	200	15	15	Soudaseal FR	PE-backer rod	Exposed face	-/240/240
D	200	15	15	Firecryl FR	PE-backer rod	Exposed face	-/240/240
E	200	10	200	Soudafoam FR	None	Both faces	-/240/240
F	200	10	10	Silirub FR	PE-backer rod	Exposed face	-/240/240
G	200	40	20	Soudaseal FR	Soudafoam FR and Firecryl FR, full depth of wall	Exposed face	-/240/240
H	200	30	20	Soudaseal FR	PE-backer rod	Both faces	-/240/240
I	200	30	20	Soudaseal FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
J	200	15	15	Firecryl FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
K	200	25	20	Soudaseal FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240

Note 1:The width of the joint may be reduced with no change of seal depth, sealant, backing materials and sealant location.

Note 2:The thickness, density and composition of the wall may be varied in accordance with the variations specified in section 6 only.

Note 3:2-way FRL applies only to symmetrical protections A, B, E, G, H, I, J, K.

The variations and outcome of this assessment are subject to the limitations and requirements described in sections 2, 3 and 8 of this report. The results of this report are valid until 30 June 2026.

Contents

1. Introduction

This report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of linear gap sealing systems in aerated concrete walls if tested in accordance with AS 1530.4:2014[1] and assessed in accordance with AS 4072.1:2005[2].

This report may be used as Evidence of Suitability in accordance with the requirements of the relevant National Construction Code (NCC) to support the use of the material, product, form of construction or design as given within the scope of this assessment report. It also references test evidence for meeting deemed to satisfy (DTS) provisions of the NCC as applicable to the assessed systems.

This assessment was carried out at the request of Soudal Australia.

The sponsor details are included in Table 2.

Table 2 Sponsor details

Sponsor	Address
Soudal Australia	75 Owen Street Glendenning NSW 2761 Australia

2. Framework for the assessment

2.1 Assessment approach

An assessment is an opinion about the expected performance of a component or element of structure if it was subject to a fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for doing these assessments. We have therefore followed the 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the Passive Fire Protection Forum (PFPF) in the UK in 2019[3].

This guide provides a framework for undertaking assessments in the absence of specific fire test results. Some areas where assessments may be offered are:

- Where a modification is made to a construction which has already been tested
- The interpolation or extrapolation of results of a series of fire resistance tests, or utilisation of a series of fire test results to evaluate a range of variables in a construction design or a product
- Where, for various reasons – eg size or configuration – it is not possible to subject a construction or a product to a fire test.

Assessments will vary from relatively simple judgements on small changes to a product or construction through to detailed and often complex engineering assessments of large or sophisticated constructions.

This assessment uses established empirical methods and our experience of fire testing similar products 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 AS 1530.4:2014.

[1] 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.
[2] Standards Australia, 2005, Components for the protection of openings in fire-resistant separating elements: Service penetrations and control joints (Reconfirmed 2016), AS 4072.1:2005 (R2016), Standards Australia, NSW.
[3] Passive Fire Protection Forum (PFPF), 2019, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.

This assessment has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated design.

2.2 Compliance with the National Construction Code

This assessment report has been prepared to meet the evidence of suitability requirements of the National Construction Code Volumes One and Two – Building Code of Australia (NCC) 2019 including amendments[4] under A5.2 (1) (d).

This assessment has been written in accordance with the general principles outlined in EN 15725:2010[5] for extended application reports on the fire performance of construction products and building elements. It also references test evidence for meeting a performance requirement or deemed to satisfy (DTS) provisions of the NCC under A5.4 for fire resistance levels as applicable to the assessed systems.

This assessment report may also be used to demonstrate compliance with the requirements for evidence of suitability under NCC 2016 including amendments[6].

2.3 Declaration

The 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the PFPF in the UK requires a declaration from the client. By accepting our fee proposal on 3 May 2021, Soudal Australia confirmed that:

- To their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the standard against which this assessment is being made.
- They agree to withdraw this assessment from circulation if the component or element of structure is the subject of a fire test by a test authority in accordance with the standard against which this assessment is being made and the results are not in agreement with this assessment.
- They are not aware of any information that could adversely affect the conclusions of this assessment and – if they subsequently become aware of any such information – they agree to ask the assessing authority to withdraw the assessment.

3. Limitations of this assessment

- The scope of this report is limited to an assessment of the variations to the tested systems described in section 4.3.
- This report details the methods of construction, test conditions and assessed results that are expected if the systems were tested in accordance with AS 1530.4:2014.
- This assessment is applicable to wall systems exposed to fire from either side otherwise the direction stated only in accordance with the requirements of AS 1530.4:2014 where vertical elements must be exposed to heat from the direction required to resist fire exposure.
- This report is only valid for the assessed system/s and must not be used for any other purpose. Any changes with respect to size, construction details, loads, stresses, edge, or end conditions – other than those identified in this report – may invalidate the findings of this assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL).
- The documentation that forms the basis for this report is listed in Appendix A.

[4] National Construction Code Volumes One and Two - Building Code of Australia 2019 including Amendments, Australian Building Codes Board, Australia
[5] European Committee for Standardization, 2010, Extended application reports on the fire performance of construction products and building elements, EN 15725:2010, European Committee for Standardization, Brussels, Belgium.
[6] National Construction Code Volumes One and Two - Building Code of Australia 2016 including Amendments, Australian Building Codes Board, Australia

- This report has been prepared based on information provided by others. Warringtonfire has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may be incorporated into this report as a result.
- This assessment is based on the proposed systems being constructed under comprehensive quality control practices and following appropriate industry regulations and Australian Standards on quality of materials, design of structures, guidance on workmanship and the expert handling, placing, and finishing of the products on site. These variables are beyond the control and consideration of this report.

4. Description of the specimen and variations

4.1 System description

Vertically and horizontally oriented gaps between sections of aerated concrete block wall separating elements sealed with different linear gap sealing systems. Gaps sealed on either the exposed side or on both sides.

4.2 Referenced test data

The assessment of the variation to the tested system and the determination of the expected performance is based on the results of the fire test documented in the reports summarised in Table 3. Further details of the tested system are included in Appendix B.

Table 3 Referenced test data

Report number	Test sponsor	Test date	Testing authority
NR. 13492A	Soudal NV	25 November 2008	WFRGENT NV

4.3 Variations to the tested systems

An identical system has not been subject to a standard fire test in accordance with AS 1530.4:2014. We have therefore assessed the system using baseline test information of the systems tested to EN 1363.1:1999 and EN 1366.4:2006. The variations to the tested systems – together with the referenced standard fire tests – are described in Table 4.

Table 4 Variations to tested systems

Item	Variations	Description	Reference test
1	Test data assessed to AS 1530.4:2014	Various gap sealing details on a 200 mm thick aerated concrete block separating element.	NR. 13492A
2	Addition of solid concrete, blockwork and masonry walls and variations in the wall thickness and density.		

4.4 Test / Assessment standard

AS 1530.4:2014 sets out the methods for conducting fire tests on building materials, components, and structures. Section 2 of this standard contains the general requirements for these tests and section 3 addresses the fire resistance testing of walls. Section 10 addresses service penetrations and control joints.

AS 4072.1:2005 provides the minimum requirements for the application of fire resistance tests and installation of fire protection systems for service penetrations and control joints through fire-resistant separating elements of construction, to facilitate the required fire resistance of separating elements.

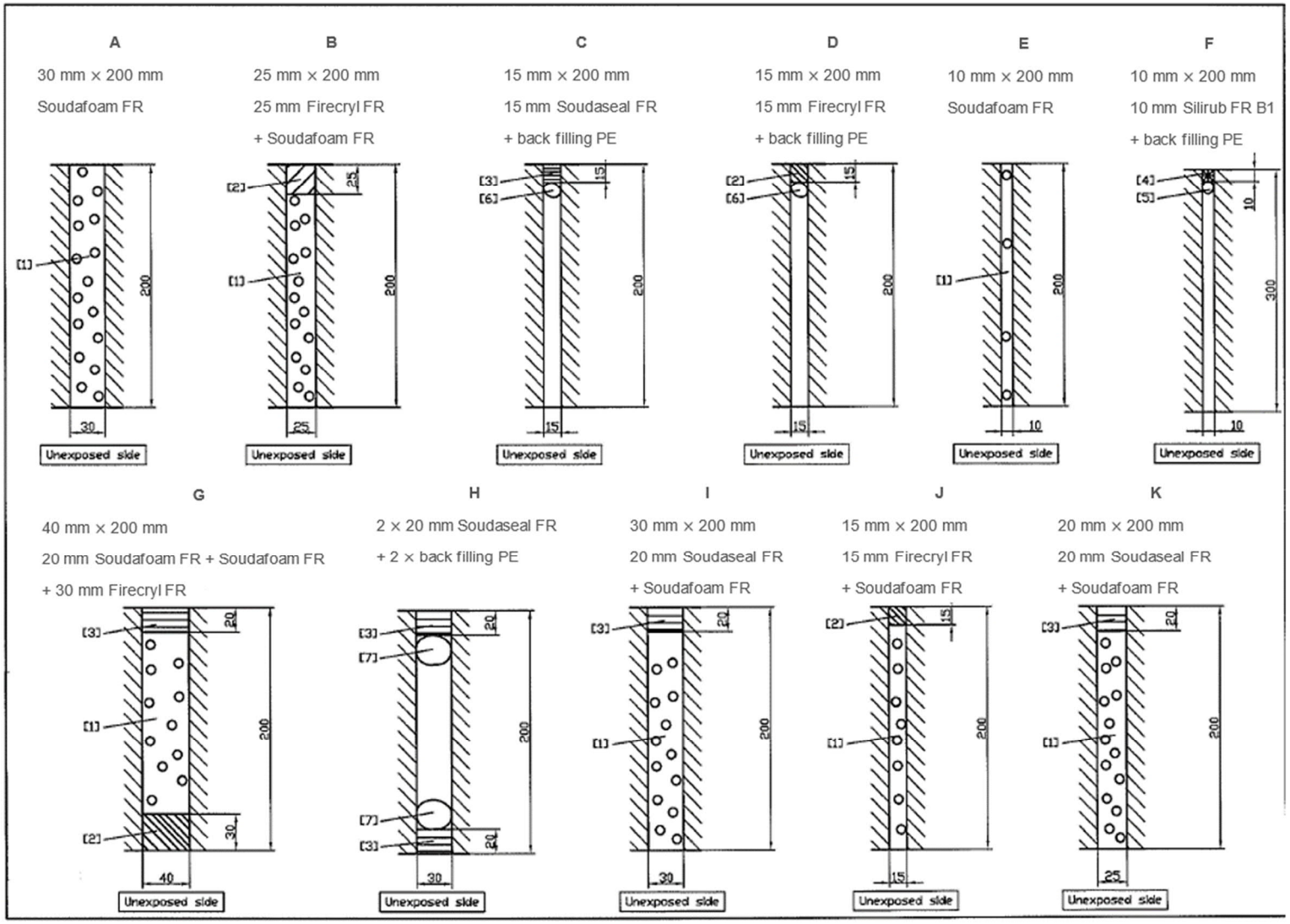
4.5 Schedule of components

Table 5 outlines the schedule of components for the assessed systems subject to a fire test, as referenced in Appendix A.

Table 5 Schedule of components of assessed systems

ID	Detail
A	30 mm × 200 mm, Soudafoam FR
B	25 mm × 200 mm, 25 mm Firecryl FR + Soudafoam FR
C	15 mm × 200 mm, 15 mm Soudaseal FR + back filling PE
D	15 mm × 200 mm, 15 mm Firecryl FR + back filling PE
E	10 mm × 200 mm, Soudafoam FR
F	10 mm × 200 mm, 10 mm Silirub FR B1 + back filling PE
G	40 mm × 200 mm, 20 mm Soudafoam FR + Soudafoam FR + 30 mm Firecryl FR
H	2 × 20 mm Soudaseal FR + 2 × back filling PE
I	30 mm × 200 mm, 20 mm Soudaseal FR + Soudafoam FR
J	15 mm × 200 mm, 15 mm Firecryl FR + Soudafoam FR
K	20 mm × 200 mm, 20 mm Soudaseal FR + Soudafoam FR

Figure 1 shows the assessed systems.



Legend

[1] Soudafoam FR – brand: Soudal – one-component self-expanding, ready to use polyurethane foam.

[2] Firecryl FR – brand: Soudal – fire retardant, intumescent plasto-elastic sealant based on acrylic dispersions.

[3] Soudaseal FR – brand: Soudal – high-quality, neutral, one-component sealant/adhesive based on SMX-technology.

[4] Silirub FR B1 – brand: Soudal – high-quality, neutral, and elastic one-component sealant based on silicones.

[5] PE-backer rod – brand: Soudal – round profile in extruded closed cell polyethylene foam – initial diameter: 20 mm

[6] PE-backer rod – brand: Soudal – round profile in extruded closed cell polyethylene foam – initial diameter: 30 mm

[7] PE-backer rod – brand: Soudal – round profile in extruded closed cell polyethylene foam – initial diameter: 40 mm

Figure 1 Section through linear gap sealing systems

5. Assessment 1 – Relevance of EN 1366.4:2006 data with respect to AS 1530.4:2014

5.1 Description of variation

The fire resistance test NR.13492A was conducted in accordance with EN 1366.4:2006 which refers to the general requirements of EN 1363.1: 1999. These standards differ from AS 1530.4:2014 and the significance of these differences is assessed below.

This assessment was done to determine the expected performance of the system if tested in accordance with AS 1530.4:2014 based on the EN 1366.4:2006 test results.

5.2 Methodology

The method of assessment used is summarised in Table 6.

Table 6 Method of assessment

Assessment method	
Level of complexity	Simple assessment
Type of assessment	Comparative

5.3 Assessment

Temperature Regime

The furnace temperature regime for fire resistance tests conducted in accordance with AS 1530.4:2014 follows the same trend as EN 1363.1:1999. The parameters outlining the accuracy of control of the furnace temperature in AS 1530.4:2014 and EN 1363.1:1999 are not appreciably different.

Furnace Thermocouples

The furnace thermocouples specified in AS 1530.4:2014 are type K, mineral insulated metal sheathed (MIMS) with a stainless steel sheath having a wire of diameter of less than 1.0 mm and an overall diameter of 3 mm. The measuring junction protrudes at least 25 mm from the supporting heat resistant tube.

The furnace thermocouple specified in EN 1363.1:1999 is made from folded steel plate that faces the furnace chamber. A thermocouple is fixed to the side of the plate facing the specimen with the thermocouple hot junction protected by a pad of insulating material. The plate part is to be constructed from 150 ± 1 mm long × 100 ± 1 mm wide × 0.7 ± 0.1 mm thick nickel alloy sheet strips.

The measuring junction is to consist of nickel chromium/nickel aluminium (Type K) wire as defined in IEC 60584-1, contained within mineral insulation in a heat-resisting steel alloy sheath of nominal diameter 1 mm, the hot junctions being electrically insulated from the sheath.

The thermocouple hot junction is to be fixed to the geometric centre of the plate, by a small steel strip made from the same material as the plate. The steel strip can be welded to the plate or may be screwed to it to facilitate replacement of the thermocouple. The strip should be approximately 18 mm × 6 mm if it is spot-welded to the plate, and nominally 25 mm × 6 mm if it is to be screwed to the plate. The screw is to be 2 mm in diameter.

The assembly of plate and thermocouple should be fitted with a pad of inorganic insulation material 97 ± 1 mm by 97 ± 1 mm × 10 ±1 mm thick with a density of 280 ± 30 kg/m^3.

The relative location of the furnace thermocouples for the exposed face of the specimen, for AS 1530.4:2014 and EN 1363.1:1999, is 100 mm ±10 mm and 100 mm ± 50 mm respectively.

The furnace control thermocouples required by EN 1363.1:1999 are less responsive than those specified by AS 1530.4:2014. This variation in sensitivity can produce a potentially more onerous

heating condition for specimen tested to EN 1363.1:1999, particularly when the furnace temperature is changing quickly in the early stages of the test.

Specimen Thermocouples

For penetration sealing systems, thermocouples are fixed in generally similar locations on the unexposed face: on the supporting construction and/or seal and on the penetrating service adjacent at the plane of penetration.

AS 1530.4:2014 specifies thermocouple locations for linear gap seals (control joints), as follows:

- At least three on the surface of the seal, with one thermocouple for each 0.3 m2 of surface area, up to a maximum of five, uniformly distributed over the area (one thermocouple being located at the centre of the seal).
- On the surface of the seal 25 mm from the edge of the opening, with one thermocouple for each 500 mm of the perimeter.
- On the surface of the separating element 25 mm from the edge of the opening, with one thermocouple for each 500 mm of the perimeter.

EN 1366:4:2006 specifies that at least three specimen thermocouples be located at the centre line of the linear joint seals, and four on separating element only 15 mm from the edge. Other thermocouples may be applied where the laboratory personnel consider it necessary, as evenly as possible, where the temperature reached is thought to be higher than elsewhere.

Furnace Pressure

It is the requirement of AS 1530.4:2014 that a pressure of 20 ± 3 Pa be maintained at the top of vertical penetrating service and the services are included in the zone where positive pressure exceeds 10 Pa, and for EN 1363.1:1999 a minimum pressure of 15 Pa is required at the centre of the lowest test specimen.

Test report NR. 13492A shows that pressure at mid height of the vertical specimen is 15 Pa. Considering 8 Pa/m rise in pressure, the pressure at the top of the vertical specimen will be 19.8 Pa and 10.2 Pa at the bottom of the specimen. Both these values satisfy pressure criteria in accordance with the requirements of AS 1530.4:2014.

The parameters outlining the accuracy of control of the furnace pressure in AS 1530.4:2014 and EN 1363.1:1999 are also not appreciably different.

Specimen Size

It is the requirement of AS 1530.4:2014 that a control joint specimen be at least 1 m long, this requirement is met by the specimen tested in NR. 13492A.

Criteria of Failure

AS 1530.4:2014 specifies the following performance criteria for linear gap sealing systems (control joints):

Structural Adequacy:

Not applicable

Integrity:

Failure in relation to integrity shall be deemed to have occurred if the specimen:

- Collapses,
- Sustained flaming on the non-fire side in excess of 10 seconds,
- Ignition of cotton pad within 30 seconds when applied.

Insulation:

Failure in relation to insulation shall be deemed to have occurred when the temperature of any of the relevant thermocouples attached to the unexposed face of the test specimen rises by more than 180 K above the initial temperature.

The integrity and insulation criteria specified in EN 1366.4:2006 are not appreciably different from AS 1530.4:2014.

Application of Test Data from 13492A to AS1530.4:2014.

The variations in furnace heating regimes, furnace thermocouples and the responses of the different thermocouple types to the furnace conditions are not expected to have significant effect on the outcome of the referenced fire resistance test.

The relative locations of the specimen thermocouples are similar however, EN 1366.4:2006 requires three thermocouples located on each control joint, and four thermocouples on the seal separating element junction. These thermocouples are 15 mm from the edge whereas AS 1530.4:2014 requires those to be 25 mm from the edge of the seal.

Due to the closer location, it will however make test results in accordance EN1366.4:2006 more onerous than those to AS 1530.4:2014.

Based on the above discussion it is considered that the results relating to the integrity and insulation performance of the tested penetrations in NR. 13492A can be safely and conservatively used to assess the FRL in accordance with AS 1530.4:2014 and AS 4072.1:2005.

6. Assessment 2 – Wall material

6.1 Description of variation

The tested system consisted of a 200 mm thick aerated concrete block separating element. The proposed variations are to allow for the options of solid concrete, blockwork and masonry walls and variations in the wall thickness and density.

This assessment was done to allow for proposed variations to the tested wall system in accordance with AS 1530.4:2014 and AS 4072.1:2005.

6.2 Methodology

The method of assessment used is summarised in Table 6.

Table 7 Method of assessment

Assessment method	
Level of complexity	Simple assessment
Type of assessment	Comparative

6.3 Assessment

In the fire resistance test NR. 13492A the tested system comprised of a 200 mm thick aerated concrete wall with a density of 550 kg/m^3. To assess the proposed variations of the material and thickness of the wall the test results, observations and time/temperature graphs can be used to guide the rationale.

In general, the integrity performance of the linear gap sealing system shows that the fire protection was adequate for the length of the test, no observations of gap development or crack formation were recorded. The tested system achieved a stable result providing confidence in the linear gap sealing systems.

Temperatures measured on the separating element were found to be well below the insulation failure limit. The graphs also indicate a steady and gradual rise in temperature on the exposed side, indicating that the fire protection did not crack or fall off. It also provides confidence in the stable behaviour of the 200 mm thick aerated concrete with a density of 550 kg/m^3 during fire exposure.

Concrete, blockwork, and masonry naturally contain moisture. With increasing density or thickness the separating element will subsequently have a higher moisture content. As the boiling temperature of water is 100˚C, at this temperature the material is expected to absorb heat while the water escapes causing the temperature/time trend on the unexposed surface to plateau for the duration of the phenomena. Increasing the thickness or density of concrete materials is expected to allow for a greater capacity to absorb heat resulting in improved integrity and insulation performance.

Additionally, air pockets and porosity in materials provide a medium for fast transfer of heat through the substrate. Hence increasing the density of a material will slow the rate of heat transfer to the unexposed side through the reduction of gaps, voids, or porosity within the separating element.

Based on the discussion above, the installation of solid concrete, blockwork, or masonry walls with thickness and/or density greater than 200 mm or 500 kg/m^3 respectively is expected to achieve FRL's no less than those assessed in Table 8.

7. Assessment outcome

This assessment demonstrates that the linear gap sealing systems in aerated concrete walls detailed in Table 8 are expected to achieve the FRLs stated in Table 8 if they were tested in accordance with AS 1530.4:2014.

Table 8 Variations and assessment outcome

ID	Minimum wall thickness (mm)	Gap width (mm)	Seal depth (mm)	Sealant reference	Backing material	Seal position	FRL
A	200	30	200	Soudafoam FR	None	Both faces	-/120/120
B	200	25	25	Firecryl FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
C	200	15	15	Soudaseal FR	PE-backer rod	Exposed face	-/240/240
D	200	15	15	Firecryl FR	PE-backer rod	Exposed face	-/240/240
E	200	10	200	Soudafoam FR	None	Both faces	-/240/240
F	200	10	10	Silirub FR	PE-backer rod	Exposed face	-/240/240
G	200	40	20	Soudaseal FR	Soudafoam FR and Firecryl FR, full depth of wall	Exposed face	-/240/240
H	200	30	20	Soudaseal FR	PE-backer rod	Both faces	-/240/240
I	200	30	20	Soudaseal FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
J	200	15	15	Firecryl FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240
K	200	25	20	Soudaseal FR	Soudafoam FR, full depth of wall	Exposed face	-/240/240

Note 1*The width of the joint may be reduced with no change of seal depth, sealant, backing materials and sealant location.

Note 2*The thickness, density and composition of the wall may be varied in accordance with the variations specified in section 6 only.

Note 3:2-way FRL applies only to symmetrical protections A, B, E, G, H, I, J, K.

Appendix A Drawings and additional information

Table 9 Details of drawings

Figure	Caption
Figure 1	Section through linear gap sealing systems taken from test report

Appendix B Summary of supporting test data

8. Validity

Warringtonfire Australia does not endorse the tested or assessed product in any way. The conclusions of this assessment may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Due to the nature of fire 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 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 subject to constant review and improvement. It is therefore recommended that this report be reviewed on, or before, the stated expiry date.

This assessment represents our opinion about the performance of the proposed systems expected to be demonstrated on a test in accordance with AS 1530.4:2014, based on the evidence referred to in this report.

This assessment is provided to Soudal Australia for their own specific purposes. This report may be used as Evidence of Suitability in accordance the requirements of the relevant National Construction Code. Building certifiers and other third parties must determine the suitability of the systems described in this report for a specific installation.

B.1 Test report – NR. 13492A

Table 10 Information about test report

<table>
<tr><th>Item</th><th>Information about test report</th></tr>
<tr><td>Report sponsor</td><td>Soudal NV, Everdongenlaan 18-20, B-2300 Turnhout, Belgium.</td></tr>
<tr><td>Test laboratory</td><td>WFRGENT NV, Ottergemsesteenweg- Zuid 711, B- 9000 Gent, Belgium</td></tr>
<tr><td>Test date</td><td>The fire resistance test was completed on 25 November 2008.</td></tr>
<tr><td>Test standards</td><td>The test was done in accordance with EN 1363.1:1999 and EN 1366.4:2006.</td></tr>
<tr><td>Variation to test standards</td><td>Thermocouples were placed in accordance with EN 1366.4:2006</td></tr>
<tr><td>General description of tested specimen</td><td>Nine vertically orientated and two horizontally oriented gaps between sections of aerated concrete block separating elements were sealed with different linear gap sealing systems. All the gaps were sealed on either the exposed side or on both sides.
<table>
<tr><th>ID</th><th>Wall thickness (mm)</th><th>Gap width (mm)</th><th>Seal depth (mm)</th><th>Sealant reference</th><th>Backing material</th><th>Seal position</th></tr>
<tr><td>A</td><td>200</td><td>30</td><td>200</td><td>Soudafoam FR</td><td>None</td><td>Both faces</td></tr>
<tr><td>B</td><td>200</td><td>25</td><td>25</td><td>Firecryl FR</td><td>Soudafoam FR</td><td>Exposed face</td></tr>
<tr><td>C</td><td>200</td><td>15</td><td>15</td><td>Soudaseal FR</td><td>PE-backer rod</td><td>Exposed face</td></tr>
<tr><td>D</td><td>200</td><td>15</td><td>15</td><td>Firecryl FR</td><td>PE-backer rod</td><td>Exposed face</td></tr>
<tr><td>E</td><td>200</td><td>10</td><td>200</td><td>Soudafoam FR</td><td>None</td><td>Both faces</td></tr>
</table></td></tr>
</table>

Item	Information about test report						
	F	200	10	10	Silirub FR	PE-backer rod	Exposed face
	G	200	40	20	Soudaseal FR	Soudafoam FR and Firecryl FR	Exposed face
	H	200	30	20	Soudaseal FR	PE-backer rod	Both faces
	I	200	30	20	Soudaseal FR	Soudafoam FR	Exposed face
	J	200	15	15	Firecryl FR	Soudafoam FR	Exposed face
	K	200	25	20	Soudaseal FR	Soudafoam FR	Exposed face
Instrumentation	The test report states that the instrumentation was in accordance with EN 1363.1:1999 and EN 1366.4:2006.						

The test specimen achieved the following results – see Table 11.

Table 11 Results summary for this test report

Specimen	Insulation	Integrity (cotton pad)	Integrity (sustained flaming)
Joint seal A	Failure at 158 minutes	Failure at 162 minutes	No failure at 163 minutes
Joint seal B	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal C	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal D	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal E	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal F	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal G	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal H	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal I	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal J	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
Joint seal K	No failure at 240 minutes	No failure at 240 minutes	No failure at 240 minutes
*The test was discontinued after 240 minutes			

warringtonfire

Proud to be part of element

Warringtonfire Australia Pty Ltd
ABN 81 050 241 524

Perth

Unit 22, 22 Railway Road
Subiaco WA 6008
Australia
T: +61 8 9382 3844

Canberra

Unit 10, 71 Leichhardt Street
Kingston ACT 2604
Australia
T: +61 2 6260 8488

Melbourne

Level 9, 401 Collins Street
Melbourne VIC 3000
Australia
T: +61 3 9767 1000

Sydney

Suite 802, Level 8, 383 Kent Street
Sydney NSW 2000
Australia
T: +61 2 9211 4333

Brisbane

Suite 6, Level 12, 133 Mary Street
Brisbane QLD 4000
Australia
T: +61 7 3238 1700

Melbourne – NATA accredited laboratory

409-411 Hammond Road
Dandenong South VIC 3175
Australia
T: +61 3 9767 1000