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Testing. Advising. Assuring.

**Title:**

Classification of Fire  
Resistance Performance  
In Accordance With  
EN 13501-2: 2007

**Notified Body No:**

0833

**Product Name:**

Nullifire M703 Fire Rated  
Silicone Sealant

**Report No:**

189847/D

**Issue No:**

1

**Prepared for:**

**Nullifire Limited**

Torrington Avenue  
Coventry  
West Midlands  
CV4 9TJ

**Date:**

26<sup>th</sup> January 2010

## 1. Introduction

This classification report defines the classification assigned to the element Nullifire system 'M703 Fire Rated Silicone Sealant' in accordance with the procedures given in BS EN 13501-2: 2007.

## 2. Details of classified product

### 2.1 General

The element Nullifire system 'M703 Fire Rated Silicone Sealant' is defined as a fire resisting linear joint sealing system to be used to reinstate the performance of walls.

### 2.2 Product description

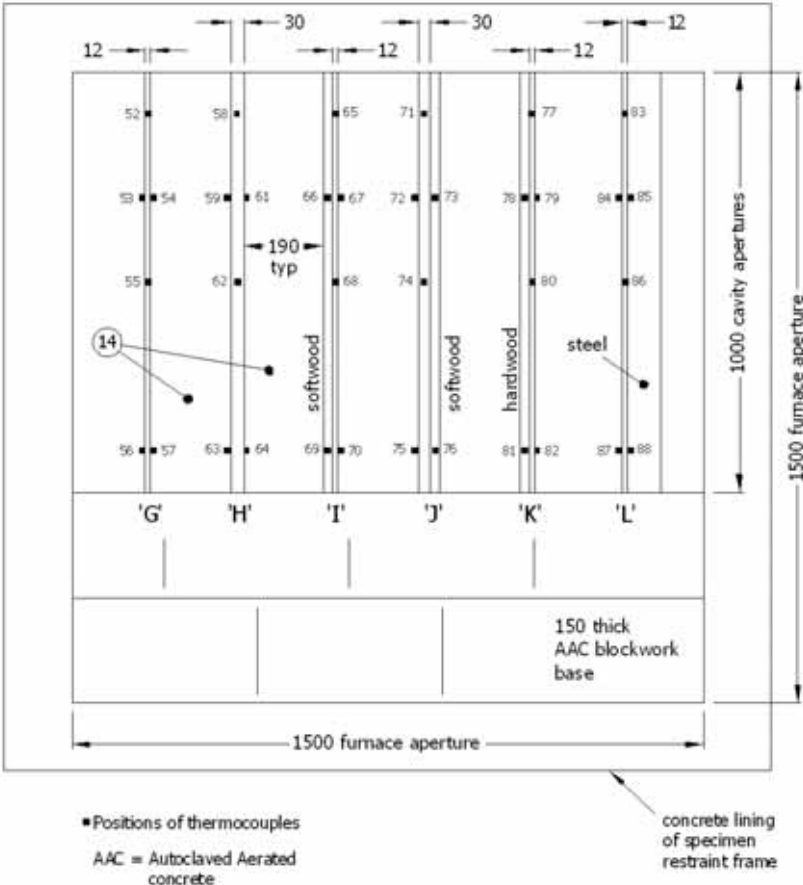
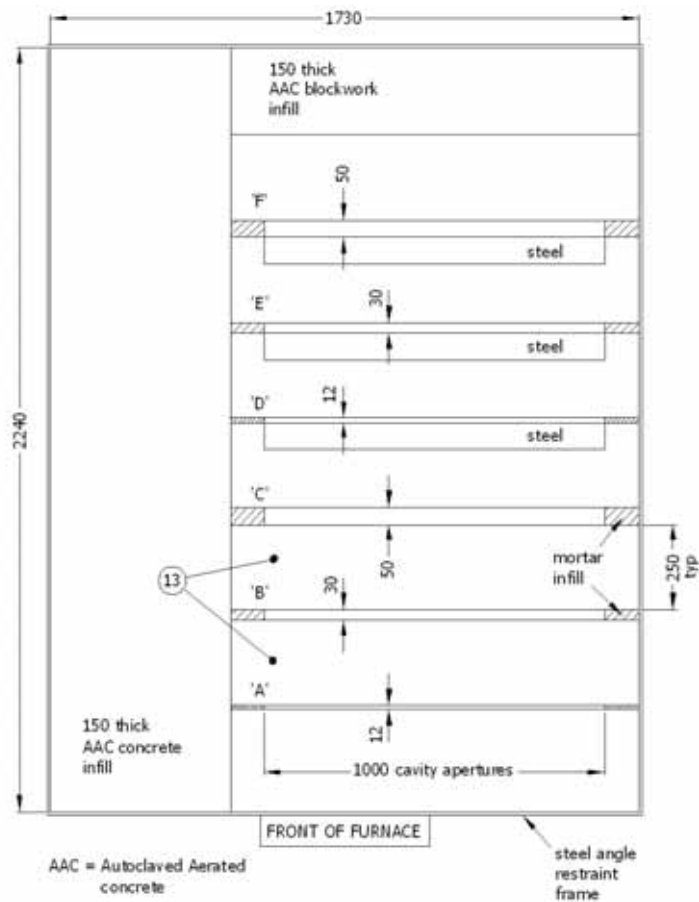
The product, Nullifire system 'M703 Fire Rated Silicone Sealant', is fully described in the test report provided in support of classification detailed in Clause 3.1.

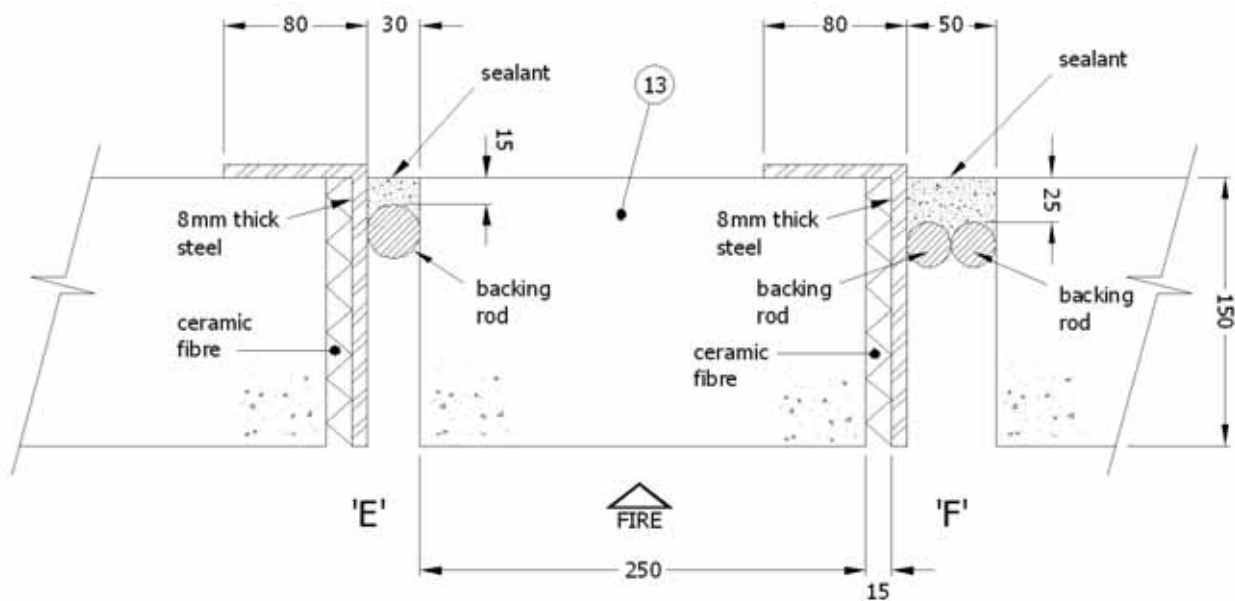
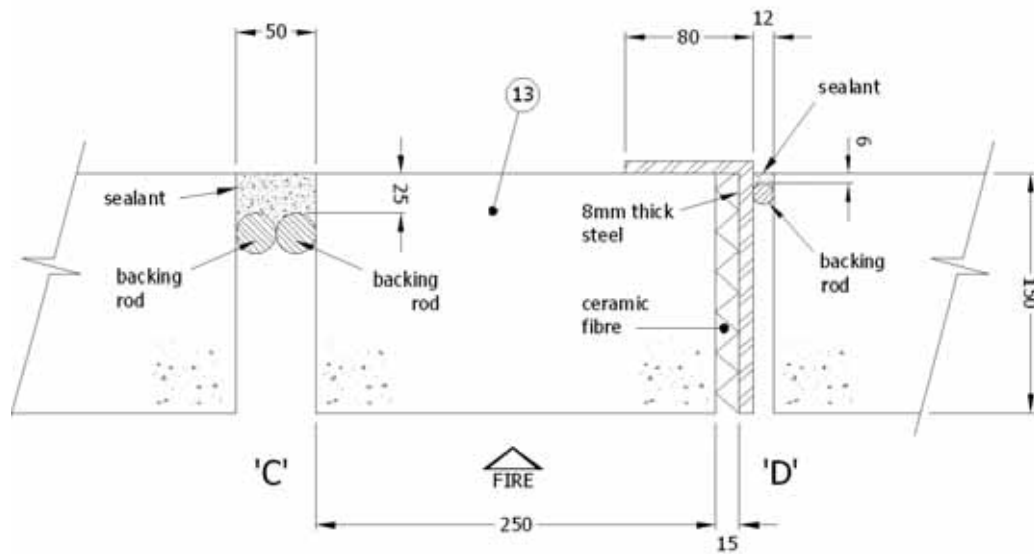
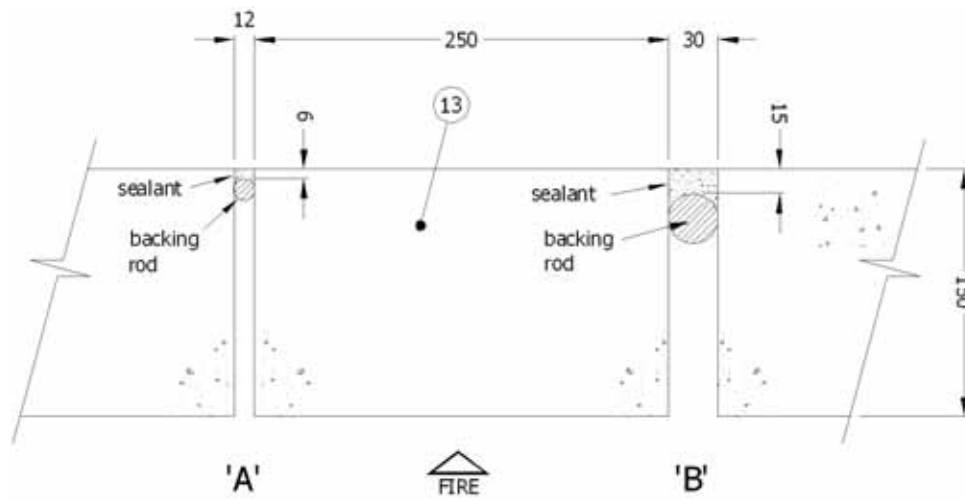
## 3. Test reports in support of classification

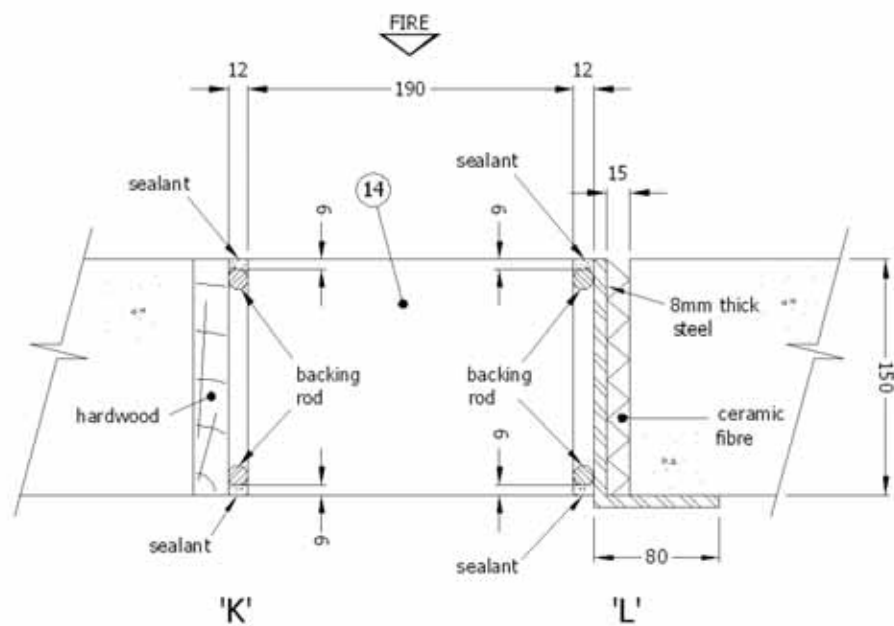
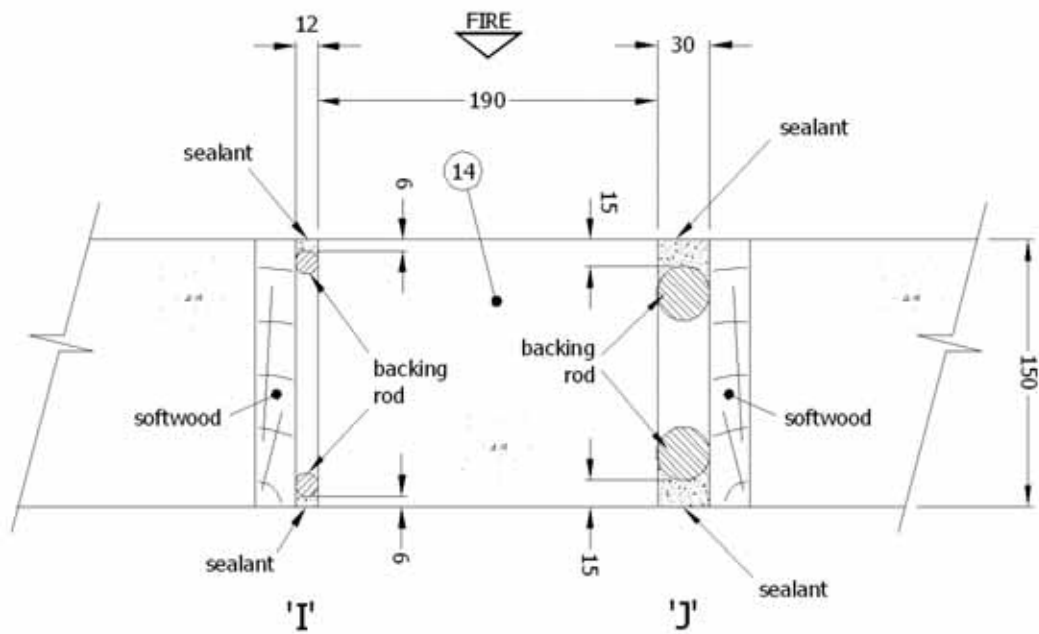
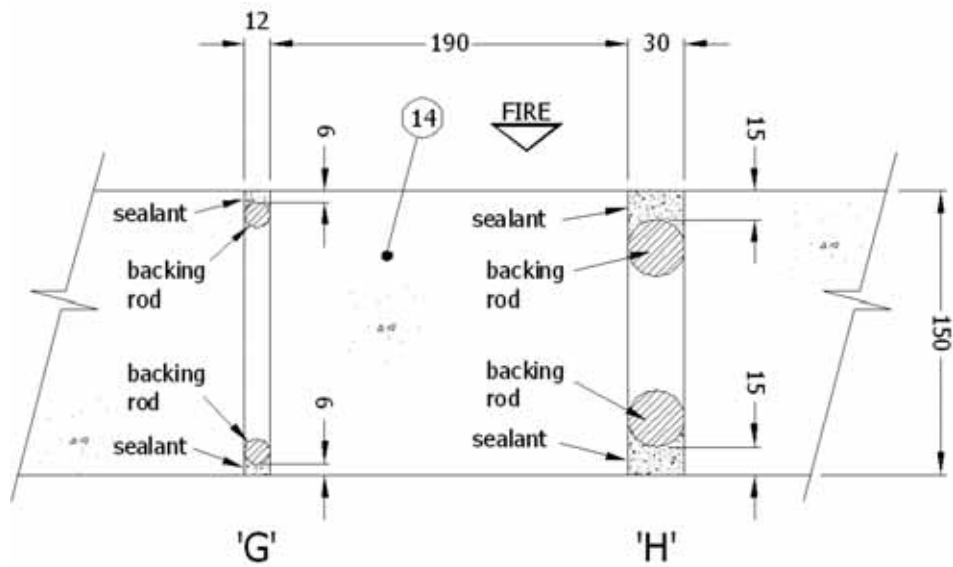
### 3.1 Summary of test/assessment reports

Name of laboratory	Name of sponsor	Test report no.	Test method
Warrington Fire Research Centre - Notified Body No. 0833	Nullifire Ltd	WF Test Report No. 182724/B	BS EN 1366-4: 2006
		WF Test Report No. 182724/C	
		WF Assessment Report No. 182724/E	

Summary of WF Test Report No. 182724/C







## Key to Drawings

### 1. Specimen 'A'

#### Details of Sealant

Manufacturer	:	Nullifire Limited
Reference	:	M703 Fire Rated Silicone Sealant
Material	:	Silicone Sealant
Overall section size of sealant	:	12 mm wide x 6 mm deep x 1000 mm long
Application method	:	Cartridge gunned at unexposed face of cavity
Overall size of cavity	:	12 mm wide x 150 mm deep x 1000 mm long

#### Details of Backing rod

Material	:	Polyethylene
Size	:	13 mm diameter
Fixing method	:	Friction fit within cavity

Details of Gap facing	:	Masonry (item 13)
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### 2. Specimen 'B'

#### Details of Sealant

Manufacturer	:	Nullifire Limited
Reference	:	M703 Fire Rated Silicone Sealant
Material	:	Silicone Sealant
Overall section size of sealant	:	30 mm wide x 15 mm deep x 1000 mm long
Application method	:	Cartridge gunned at unexposed face of cavity
Overall size of cavity	:	30 mm wide x 150 mm deep x 1000 mm long

#### Details of Backing rod

Material	:	Polyethylene
Size	:	30 mm diameter
Fixing method	:	Friction fit within cavity

Details of Gap facing	:	Masonry (item 13)
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### 3. Specimen 'C'

#### Details of Sealant

Manufacturer	:	Nullifire Limited
Reference	:	M703 Fire Rated Silicone Sealant
Material	:	Silicone Sealant
Overall section size of sealant	:	50 mm wide x 25 mm deep x 1000 mm long
Application method	:	Cartridge gunned at unexposed face of cavity
Overall size of cavity	:	50 mm wide x 150 mm deep x 1000 mm long

#### Details of Backing rod

Material	:	Polyethylene
Size	:	2 no. rods, each 25 mm diameter
Fixing method	:	Friction fit within cavity

Details of Gap facing	:	Masonry (item 13)
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<b><u>Item</u></b>	<b><u>Description</u></b>
<b>4. Specimen 'D'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 12 mm wide x 6 mm deep x 1000 mm long
Application method	: Cartridge gunned at unexposed face of cavity
Overall size of cavity	: 12 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 13 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Steel/Masonry (item 13)
Details of steel	
Thickness	: 8 mm
Fixing method to masonry	: 3 no. 5.5 mm diameter x 75 mm long screws
Details of insulation infill	
Material	: Ceramic fibre insulation
Fixing method	: Friction fit within void behind steel facing. See Figure 4.
<b>5. Specimen 'E'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 30 mm wide x 15 mm deep x 1000 mm long
Application method	: Cartridge gunned at unexposed face of cavity
Overall size of cavity	: 30 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 30 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Steel/Masonry (item 13)
Details of steel	
Thickness	: 8 mm
Fixing method to masonry	: 3 no. 5.5 mm diameter x 75 mm long screws
Details of insulation infill	
Material	: Ceramic fibre insulation
Fixing method	: Friction fit within void behind steel facing. See Figure 5.
<b>6. Specimen 'F'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 50 mm wide x 25 mm deep x 1000 mm long
Application method	: Cartridge gunned at unexposed face of cavity
Overall size of cavity	: 50 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter

<b><u>Item</u></b>	<b><u>Description</u></b>
<b>6. continued</b>	
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Steel/Masonry (item 13)
Details of steel	
Thickness	: 8 mm
Fixing method to masonry	: 3 no. 5.5 mm diameter x 75 mm long screws
Details of insulation infill	
Material	: Ceramic fibre insulation
Fixing method	: Friction fit within void behind steel facing. See Figure 5.
<b>7. Specimen 'G'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 12 mm wide x 6 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 12 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 13 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Masonry (item 14)
<b>8. Specimen 'H'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 30 mm wide x 15 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 30 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 30 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Masonry (item 14)
<b>9. Specimen 'I'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 12 mm wide x 6 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 12 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 13 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Timber/Masonry (item 14)



<u>Item</u>	<u>Description</u>
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**9. continued**

Details of Timber

Material	: Softwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws

**10. Specimen 'J'**

Details of Sealant

Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 30 mm wide x 15 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 30 mm wide x 150 mm deep x 1000 mm long

Details of Backing rod

Material	: Polyethylene
Size	: 30 mm diameter

**Fixing method**

<b>Details of Gap facing</b>	: Timber/Masonry (item 14)
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Details of Timber

Material	: Softwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws

**11. Specimen 'K'**

Details of Sealant

Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 12 mm wide x 6 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 12 mm wide x 150 mm deep x 1000 mm long

Details of Backing rod

Material	: Polyethylene
Size	: 13 mm diameter

**Fixing method**

<b>Details of Gap facing</b>	: Timber/Masonry (item 14)
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Details of Timber

Material	: Hardwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws

**12. Specimen 'L'**

Details of Sealant

Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 12 mm wide x 6 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 12 mm wide x 150 mm deep x 1000 mm long

**Item**

**Description**

**12. continued**

Details of Backing rod

Material : Polyethylene

Size : 13 mm diameter

Fixing method : Friction fit within cavity

Details of Gap facing : Steel/Masonry (item 14)

Details of steel

Thickness : 8 mm

Fixing method to masonry : 3 no. 5.5 mm diameter x 75 mm long screws

Details of insulation infill

Material : Ceramic fibre insulation

Fixing method : Friction fit within void behind steel facing. See Figure 9.

**13. Concrete Floor**

Material : Autoclaved aerated concrete lintels

Density : 670 kg/m<sup>3</sup>

Thickness : 150 mm

Bedding material : Ordinary sand/cement mortar mix

**14. Blockwork Wall**

Material : Autoclaved aerated concrete blocks

Density : 760 kg/m<sup>3</sup>

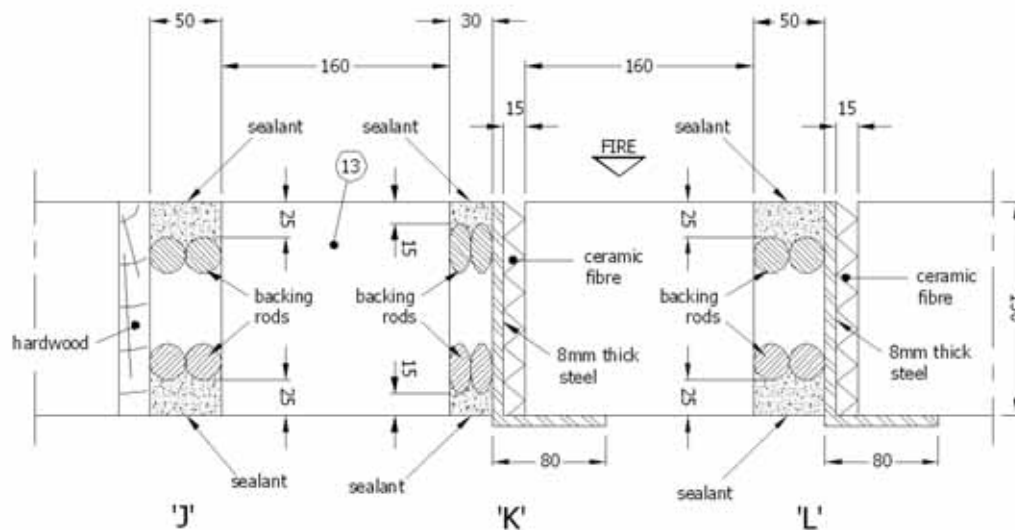
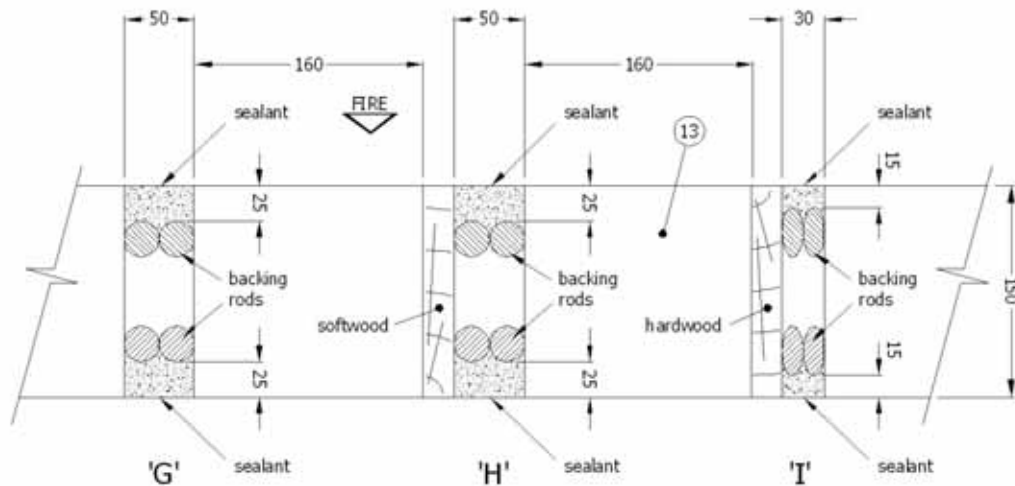
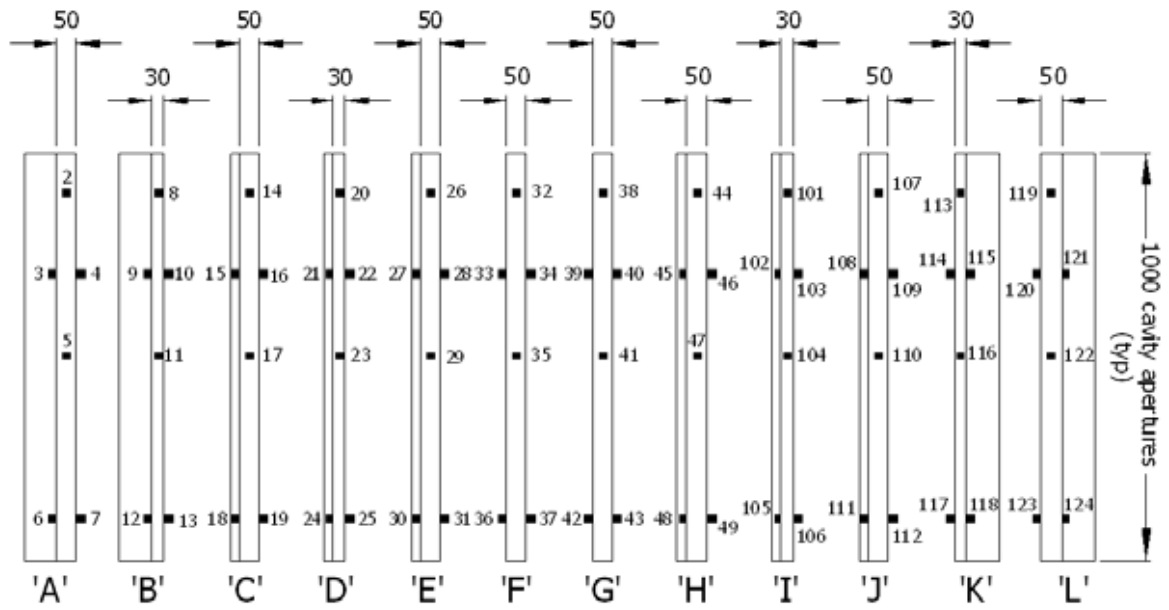
Thickness : 150 mm

Bedding material : Ordinary sand/cement mortar mix

**Results:**

Reference	Integrity (mins)		Insulation (mins)
	Cotton Pad	Sustained flaming	
A	244	300*	122
B	300*	300*	186
C	246	300*	65
D	300*	300*	48
E	300*	300*	43
F	229	300*	33
G	300*	300*	300*
H	300*	300*	300*
I	199	199	145
J	143	143	143
K	208	208	208
L	300*	300*	69

Summary of WF Test Report No. 182724/B



## Key to Drawings

<b><u>Item</u></b>	<b><u>Description</u></b>
<b>7. Specimen 'G'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 50 mm wide x 25 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 50 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Masonry (item 13)
<b>8. Specimen 'H'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 50 mm wide x 25 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 50 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Timber/Masonry (item 13)
Details of Timber	
Material	: Softwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws

<b><u>Item</u></b>	<b><u>Description</u></b>
<b>9. Specimen 'I'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 30 mm wide x 15 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 30 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Timber/Masonry (item 13)
Details of Timber	
Material	: Hardwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws
<b>10. Specimen 'J'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 50 mm wide x 25 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 50 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter
<b>Fixing method</b>	: Friction fit within cavity
<b>Details of Gap facing</b>	: Timber/Masonry (item 13)
Details of Timber	
Material	: Hardwood
Thickness	: 22 mm
Fixing method to masonry	: 6 no. screws
<b>11. Specimen 'K'</b>	
Details of Sealant	
Manufacturer	: Nullifire Limited
Reference	: M703 Fire Rated Silicone Sealant
Material	: Silicone Sealant
Overall section size of sealant	: 30 mm wide x 15 mm deep x 1000 mm long
Application method	: Cartridge gunned at both faces of cavity
Overall size of cavity	: 30 mm wide x 150 mm deep x 1000 mm long
Details of Backing rod	
Material	: Polyethylene
Size	: 2 no. rods, each 25 mm diameter
Fixing method	: Friction fit within cavity
Details of Gap facing	: Steel/Masonry (item 13)

**Item**

**Description**

**11. continued**

Details of steel

Thickness : 8 mm

Fixing method to masonry : 3 no. 5.5 mm diameter x 75 mm long screws

Details of insulation infill

Material : Ceramic fibre insulation

Fixing method : Friction fit within void behind steel facing.  
See Figure 6.

**12. Specimen 'L'**

Details of Sealant

Manufacturer : Nullifire Limited

Reference : M703 Fire Rated Silicone Sealant

Material : Silicone Sealant

Overall section size of sealant : 50 mm wide x 25 mm deep x 1000 mm long

Application method : Cartridge gunned at both faces of cavity

Overall size of cavity : 50 mm wide x 150 mm deep x 1000 mm long

Details of Backing rod

Material : Polyethylene

Size : 2 no. rods, each 25 mm diameter

**Fixing method** : Friction fit within cavity

**Details of Gap facing** : Steel/Masonry (item 13)

Details of steel

Thickness : 8 mm

Fixing method to masonry : 3 no. 5.5 mm diameter x 75 mm long screws

Details of insulation infill

Material : Ceramic fibre insulation

Fixing method : Friction fit within void behind steel facing.  
See Figure 6.

**13. Blockwork Wall**

Material : Autoclaved aerated concrete blocks

Density : 760 kg/m<sup>3</sup>

Thickness : 150 mm

Bedding material : Ordinary sand/cement mortar mix

**Results:**

Reference	Integrity (mins)		Insulation (mins)
	Cotton Pad	Sustained flaming	
G	300*	300*	300*
H	284	284	284
I	285	285	285
J	240	240	240
K	300*	300*	97
L	300*	300*	154

### Summary of WF Assessment Report No. 182724/E

The assessment report referenced WF No. 182724/E, provides a considered opinion with regard to intermediate widths/depths of joint seals, based upon the sizes of joint seal tested under the references WF No. 181970 & 181968. Based upon reference to ETAG 026: Part 3, which considers that 'where there is sufficient data to allow sensible analysis, this approach may be considered.'

Appraised performance:

Wall Mounted Seals*					
Gap Width mm	Seal width/depth ratio	Backing material	Gap face material	Integrity mins	Insulation mins
12-50	2:1	PE open cell foam	AAC/AAC	300	180
12			AAC/Softwood	180	120
13-49				120	120
50				240	240
12-29			AAC/Hardwood	120	120
30-50				240	240
12-29			AAC/Steel	300	60
30-49				300	90
50				300	120

\* Double-sided seal

Floor Mounted Seals					
Gap Width mm	Seal width/depth ratio	Backing material	Gap face material	Integrity mins	Insulation mins
12-30	2:1	PE open cell foam	AAC/AAC	240	120
31-50				240	60
12-30			AAC/Steel	300	30
31-50				180	30

AAC - Autoclaved aerated concrete  
PE - Polyethylene

**Field Of Direct Application:**

**Orientation**

The field of application regarding the orientation of the linear joint is given in Table 1.

**Table 1**

Tested orientation	Application
A	A, D, E <sup>a</sup>
B	B
C	C, D <sup>b</sup>

<sup>a</sup> Orientation E will only be covered by test orientation A if shear movement was chosen and one face of the joint was fixed and the other was moved.

<sup>b</sup> Orientation D will only be covered by test orientation C if shear movement was chosen and one face of the joint was fixed and the other face was moved.

**Key**

- A** linear joint in a horizontal test construction
- B** vertical linear joint in a vertical test construction
- C** horizontal linear joint in a vertical test construction
- D** horizontal wall joint abutting a floor, ceiling or roof
- E** horizontal floor joint abutting a wall

Table 1 only applies when both the supporting construction and the location of the seal within the linear joint remain unchanged.

**Supporting construction**

Results obtained with autoclaved aerated concrete standard supporting constructions apply to concrete, block work and masonry separating elements of a thickness and density equal to or greater than that tested.

Results obtained with normal concrete standard supporting constructions apply to concrete and block work separating elements of a thickness and density equal to or greater than that tested.

Results obtained with timber standard supporting construction apply to timber separating elements of a thickness and density equal to or greater than that tested.

Results obtained with steel angle standard supporting construction as described in 7.2.2.3 apply to separating element constructions made of metals with a melting point higher than 1000°C.

Results obtained with a combination of a standard supporting construction as described in 7.2.2.1 and a standard supporting construction as described in 7.2.2.3 apply to concrete, block work and masonry separating elements of a thickness and density equal to or greater than that tested forming one joint face and separating element constructions made of metals with a melting point higher than 1000°C forming the other joint face.

A fire resistance time obtained on a specific non-standard supporting construction applies only to that particular construction.



### Seal Position

Test results are valid only for the position in which the seal was tested, except that where the linear joint seal was fitted flush to the surface of the supporting construction and is exposed to the fire.

### Mechanically induced movement

If the movement capability of a linear joint seal is less than  $\pm 7.5\%$ , the linear joint seal may be tested without mechanically induced movement and the result applies to the movement capability reported.

Results obtained with mechanically induced movement prior to or during the tests are only valid for the movement capability tested or lower.

## 4. Classification and field of application

### 4.1 Reference of classification

This classification has been carried out in accordance with clause 7 of EN 13501-2: 2007.

### 4.2 Classification

The product, Nullifire system 'M703 Fire Rated Silicone Sealant', may be classified according to the following combinations of performance parameters and classes as appropriate.

R	E	I	W		<i>t</i>	-	M	C	S	IncSlow	sn	ef	r
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Considering the tests submitted for classification, Nullifire system 'M703 Fire Rated Silicone Sealant', provides the following classification for the tested linear joint seal size and configuration:

Fire resistance classification in walls 150mm or thicker (seal to both faces)									
Classification of the seal as ticked	Joint substrates and width range at 2:1 Seal width/depth ratio (mm)								
	AAC/ AAC	AAC/Softwood			AAC/Hardwood		AAC/Steel		
	12-50	12	13-49	50	12-29	30-50	12-29	30-49	50
<b>EI 240</b>				<b>X</b>		<b>X</b>			
<b>E 240</b>	<b>X</b>						<b>X</b>	<b>X</b>	<b>X</b>
<b>EI 120</b>	<b>X</b>	<b>X</b>	<b>X</b>		<b>X</b>				<b>X</b>
<b>E 120</b>									
<b>EI 90</b>								<b>X</b>	
<b>E 90</b>									
<b>EI 60</b>							<b>X</b>		

Maximum classification for seals with installations according to table... In case of installation of the seal in walls with a lower classification (i.e. EI 30) but with the same thickness, construction and/or density, the classification of the seal is reduced to the classification of the wall.

Fire resistance classification in floors 150mm or thicker (seal to upper face only)				
Classification of the seal as ticked	Joint substrates and width range at 2:1 Seal width/depth ratio (mm)			
	AAC/AAC		AAC/Steel	
	12 -30	31-50	12-30	21-50
<b>EI 240</b>				
<b>E 240</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>EI 120</b>	<b>X</b>			
<b>E 120</b>				<b>X</b>
<b>EI 90</b>				
<b>E 90</b>				
<b>EI 60</b>		<b>X</b>		
<b>E 60</b>				
<b>EI 45</b>				
<b>E 45</b>				
<b>EI 30</b>			<b>X</b>	<b>X</b>

Maximum classification for seals with installations according to table... In case of installation of the seal in walls with a lower classification (i.e. EI 15) but with the same thickness, construction and/or density, the classification of the seal is reduced to the classification of the floor.

#### 4.3 Field of application

The results of the tests are directly applicable to similar constructions where one or more of the changes listed below each test summary are made and the construction continues to comply with that appropriate design code for its stiffness and stability. Other changes are not permitted.

#### 5. Limitations

This classification document does not represent type approval or certification of the product.

##### SIGNED



Chris Johnson  
Principal Certification Engineer

##### APPROVED



Andy Kearns  
Technical Manager

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