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Title:

The Fire Resistance Performance Of Four Specimens Of Floor Mounted 'Open-State' Cavity Barriers, Tested Utilising The General Principles Of Draft Standard ASFP TG 3 N64: (Fourth draft Feb 2013).

Report No:

328279/A

Prepared for:

Siderise Insulations Ltd

Forge Industrial Estate
Maesteg
Bridgend
Mid Glamorgan
CF34 0AZ

Date:

23rd July 2013

Notified Body No:

0833

UKAS TESTING
0249

Summary

Objective

A fire resistance test has been conducted to assess the ability of four horizontally orientated specimens of 'open-state' cavity barrier sealing systems, to reinstate the fire resistance of a pre-cast, aerated concrete floor when tested utilising the general principles of Draft Standard ASFP TG 3 N64: (Fourth draft Feb 2013).

Sponsor

Siderise Insulations Ltd, Forge Industrial Estate, Maesteg, Bridgend, Mid Glamorgan, CF34 0AZ

Summary of the Tested Specimen

For the purpose of the test the floor specimens were referenced A to D.

The section of floor had overall dimensions of 2000 mm long by 1500 mm wide by 600 mm thick and was made up of autoclaved aerated concrete lintels arranged to provide three 300 mm wide by 1200 mm long and one 25 mm wide by 1200 mm long apertures.

SIDERISE RH25 was formerly marketed as Lamatherm CW-RSH

Specimens A to C briefly comprised a foil faced rock fibre lamella rainscreen cavity barrier referenced 'Lamatherm CW-RSH (curtain wall rainscreen horizontal)' which had a nominal density of 75 kg/m^3 and overall dimensions of 275 mm wide by 1200 mm long by 120 mm thick (Specimen A), 90 mm thick (Specimen B), and 75 mm thick (Specimen C). Each specimen included a [redacted] intumescent strip which was fixed to one edge of the primary seal with branding tape and folded returns of support brackets that penetrated full width of the specimen. Each specimen also included a layer of 90 mm thick PIR insulation which was fixed to one face of the supporting construction utilising metal insulation fixings, and was complete with a 25 mm wide ventilation gap.

Specimen D briefly comprised a graphite based intumescent strip which was screw fixed to one face of the supporting construction and was complete with a 25 mm wide ventilation gap.

Full details of the specimens and installation methods are given in the Schedule of Components.

The test incorporated 4 other specimens referenced "Specimens E to H", which are reported separately in WF Report No. 328279/B.

Test Results

When tested to the temperature and pressure conditions of BS EN 1363-1: 2012, in conjunction with the requirements of Draft Standard ASFP TG 3 N64: (Fourth draft Feb 2013), the requirements of the standard were satisfied for the following periods.

Technical failure of integrity of Specimens A to D would deem to have occurred at the start of the test due to the open void required for such seal types. However, following the expansion of the intumescent layer, full closure of each cavity was deemed to occur between 1 minute and 4 minutes 38 seconds. Performance of the seal can then be measured from this point. **These requirements were satisfied for the periods shown below:**

#Ad hoc insulation criteria – The ad hoc measurement of insulation performance starts after the initial spike in temperature while the intumescent seal reacts. The temperature must drop below 180ºC above ambient. The insulation performance time is then given when 180ºC above ambient is reached for the second time.

Product ref:

RH25-120/60 (300mm)
RH25-090/60 (300mm)
RH25-090/30 (300mm)
RH25-120/60 (25mm)

Specimen	Integrity (mins)		Insulation (mins)	Insulation (mins) suspended T/C's
	Cotton pad	Sustained flaming		
A	136*	136*	81	136*
B	110	110#	61	110
C	116	116	57	116
D	124	124	112	112

*The test duration. #Specimen blanked off to allow the test to continue. The test was discontinued after a period of 136 minutes.

The failure criteria of each specimen was measured after the ventilated cavities had an effective seal by the means of the intumescent properties of the products and the findings were as follows:

i. At 1 minute of testing, the suspended thermocouples reached their peak temperature, with seal A, B and C not breaching the ASFP requirements of 180ºC plus ambient and seal D reaching 318ºC.

ii. At 1 minute as the peak temperatures indicate an effective seal had formed, although not full developed to the full 75 mm depth.

iii. Between 1 minute and 2 minutes test duration, the temperature of seal D fell below the ASFP requirements of 180ºC plus ambient.

iv. Between 1 minute and 4 minutes 38 seconds, the seals continued to develop to the full 75 mm depth.

Date of Test

15th May 2013