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BRE Global Classification Report

Kingspan Insulation Ltd. Classification of fire performance in accordance with BR 135: 2013 Annex B

Prepared for: Kingspan Insulation

Date: 02 December 2016

Report Number: P100184-1001 Issue 3

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CLASSIFICATION OF FIRE PERFORMANCE IN ACCORDANCE WITH BR 135:2013 Annex B

Sponsor: Kingspan Insulation Ltd, Pembridge, Leominster, Herefordshire HR6 9LA

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Product name: Kingspan K15 insulated system with a ventilated ArGeTon Terracotta tile rain screen.

Classification report No.: P100184-1001

Issue number: 3

Date of issue: 02 December 2016

This classification report consists of 16 pages and may only be used or reproduced in its entirety.

1 Introduction

This report presents the classification of the system detailed in section 2. The classification is carried out in accordance with the procedures given in BR 135 – 'Fire performance of external thermal insulation for walls of multi-storey buildings', Third edition, Annex B 2013. This classification should be read in conjunction with this document and the associated test reports referenced in section 4.

This classification report is issue 3 of this document. The test report that this classification refers to has been up issued and this document has been changed accordingly.

Classification report P100183-1001 issue 2 has been withdrawn from the date of this report.

2 Details of the Classified Product

2.1 Description of substrate

The test specimen was installed onto face 1 of the BRE Global External Cladding Test Facility. This is a multi-faced test facility constructed from steel, the cladding system was affixed to the steel substructure.

2.2 Description of product

The system prior to test is shown in Figure 1. Full details of the system specification and installation details have been provided by the client and are summarised in the following section. The system, as built comprised of:

- Double layer of 12.5 mm Gyproc wall board.
- 150mm steel frame.
- 12mm Cement Particle board. (Versapanel Manufactured by Euroform)
- ArGeTon Aluminium T rail section
- ArGeTon Aluminium Helping hand brackets
- ArGeTon Tampa clips
- AIM VRB plus Firebreaks (2 x FF102 6.0 x 75 x 1000mm) horizontal Intumescent expanding fire break fixed and mineral wool bats forming 150mm x 195mm firebreak,
- 140mm Kingspan K15 Kooltherm insulation board
- 30mm ArGeTon Tampa terracotta tiles (Grey)

Steel substructure and fixings

A sectional steel frame system (SFS) was installed between the floor slab hangers on the main cladding wall 1, with horizontal base and head tracks fixed to the steel substrate. Vertical rails were installed at nominal 300mm centres to form the steel fame. A double layer of 12.5mm Gyproc wall board was installed on the rear of the SFS and a single layer of cement particle sheathing board was fixed to the front of the SFS.

Cladding system

An array of 200mm deep ArGeTon helping hand brackets were attached to the steel frame using 3-SS-5.5 x 35 tec screws through the sheathing boards. A single layer of 140mm Kingspan K15 Kooltherm insulation board was pushed into position over the helping hand brackets and mechanically attached to the sheathing board with 160mm self-tapping screws and plastic washers. All the joints in on the K15 panels were taped with aluminium tape.

Fire breaks

Three horizontal ventilated fire breaks, formed from 2 mineral wool bats of 75 mm x 195mm with two intumescent strips (AIM FF 102/ 50. FF102 x 6.0 x 75 x 1000mm), fixed to the face of the mineral wool bats. These were fixed in a continuous strip, were fixed back to the sheathing board with the AIM 25mm x 150mm fire break fixings at the manufactures recommended spacing of two clips per linear metre of barrier. The barrier was pushed onto the fixings.

Rain screen

ArGeTon Tampa 30mm x 250mm x 600mm tiles were held in place using ArGeTon Tampa tiles clips and Fixfast R-AC 4.8 x 15mm rivets, which were fixed to the ArGeTon Tee sections.

2.3 Installation of Specimen

All test materials were supplied by the sponsor. BRE were not involved in the sample selection process and therefore cannot comment upon the relationship between samples supplied for test and the product supplied to market. The test sponsor undertook the installation of the test specimen.

3 Product Specification

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Figure 1. System prior to test.

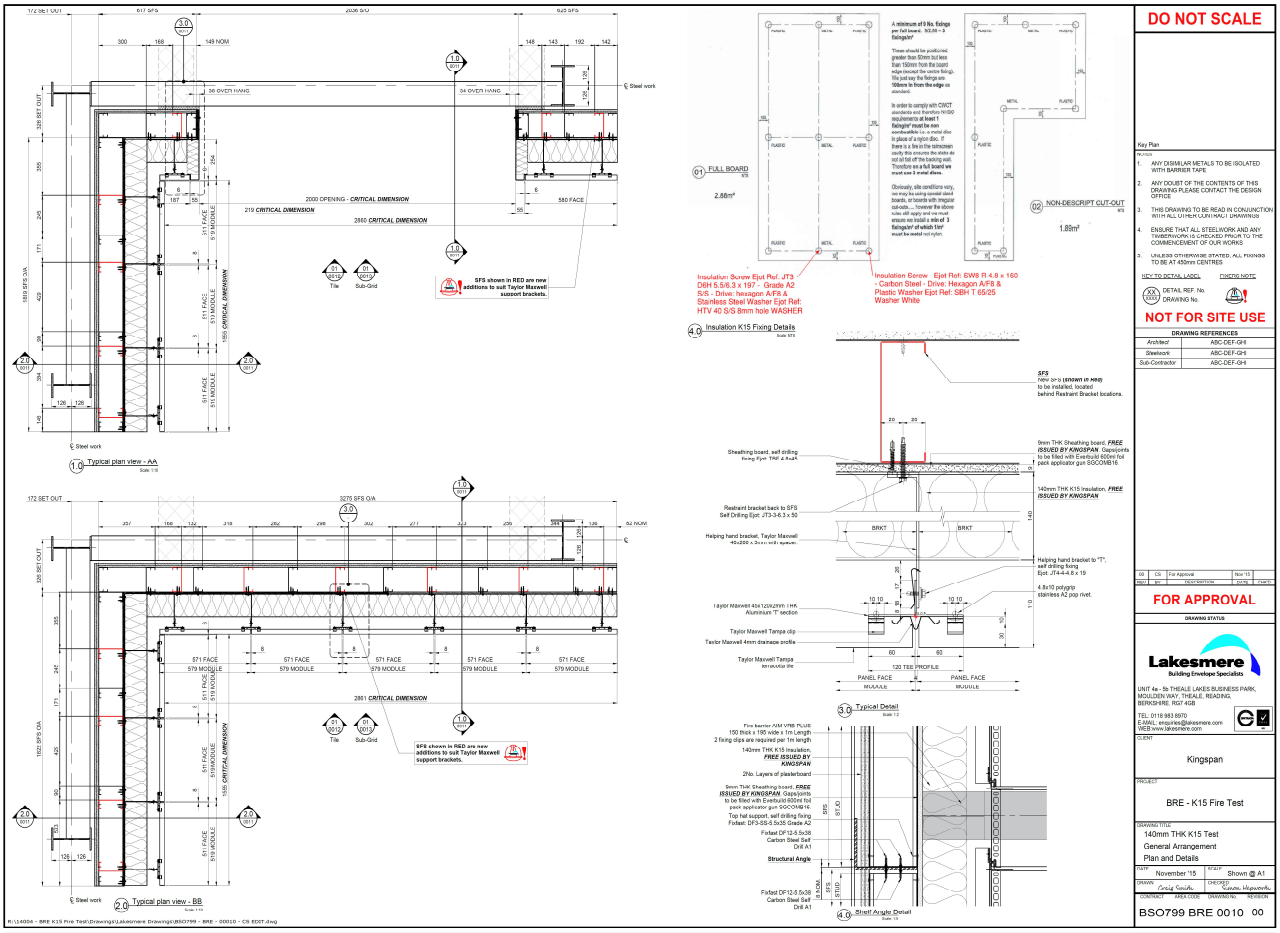

Figure 2. Product details

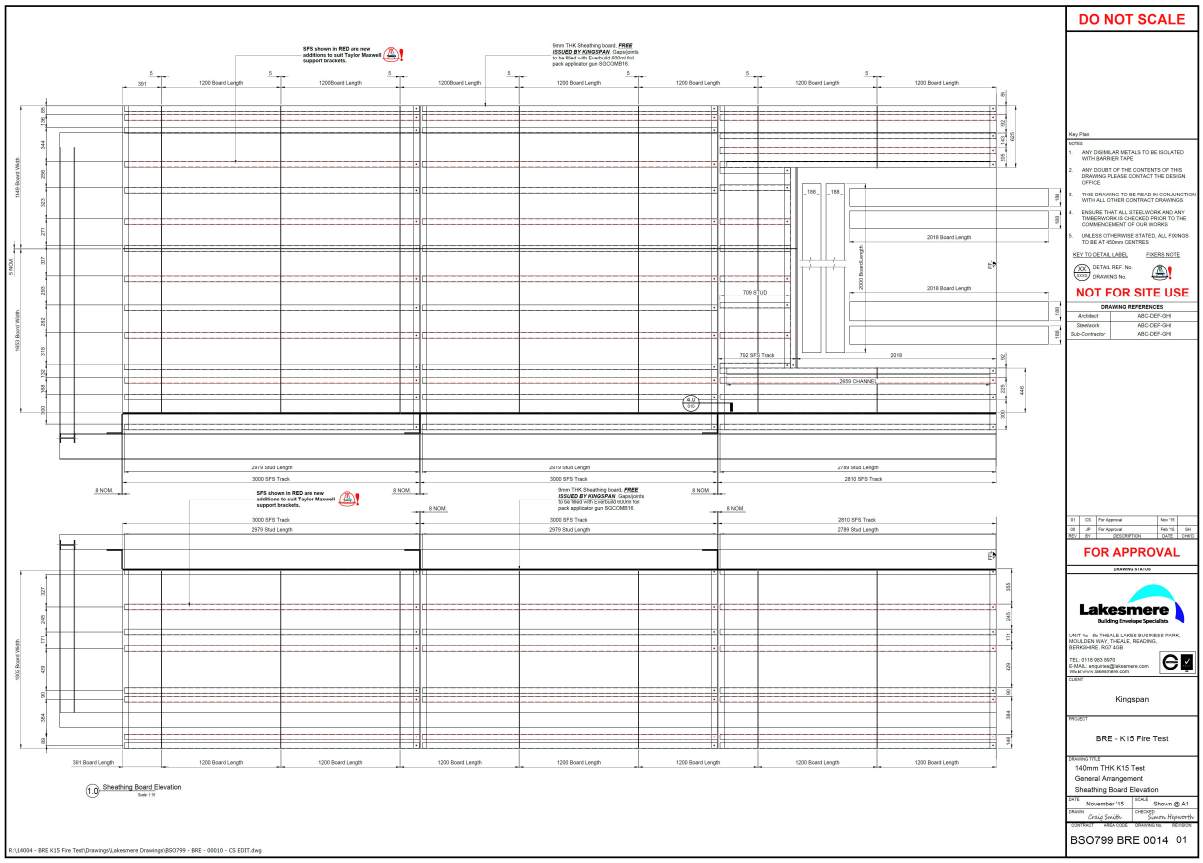

Figure 3. Product details

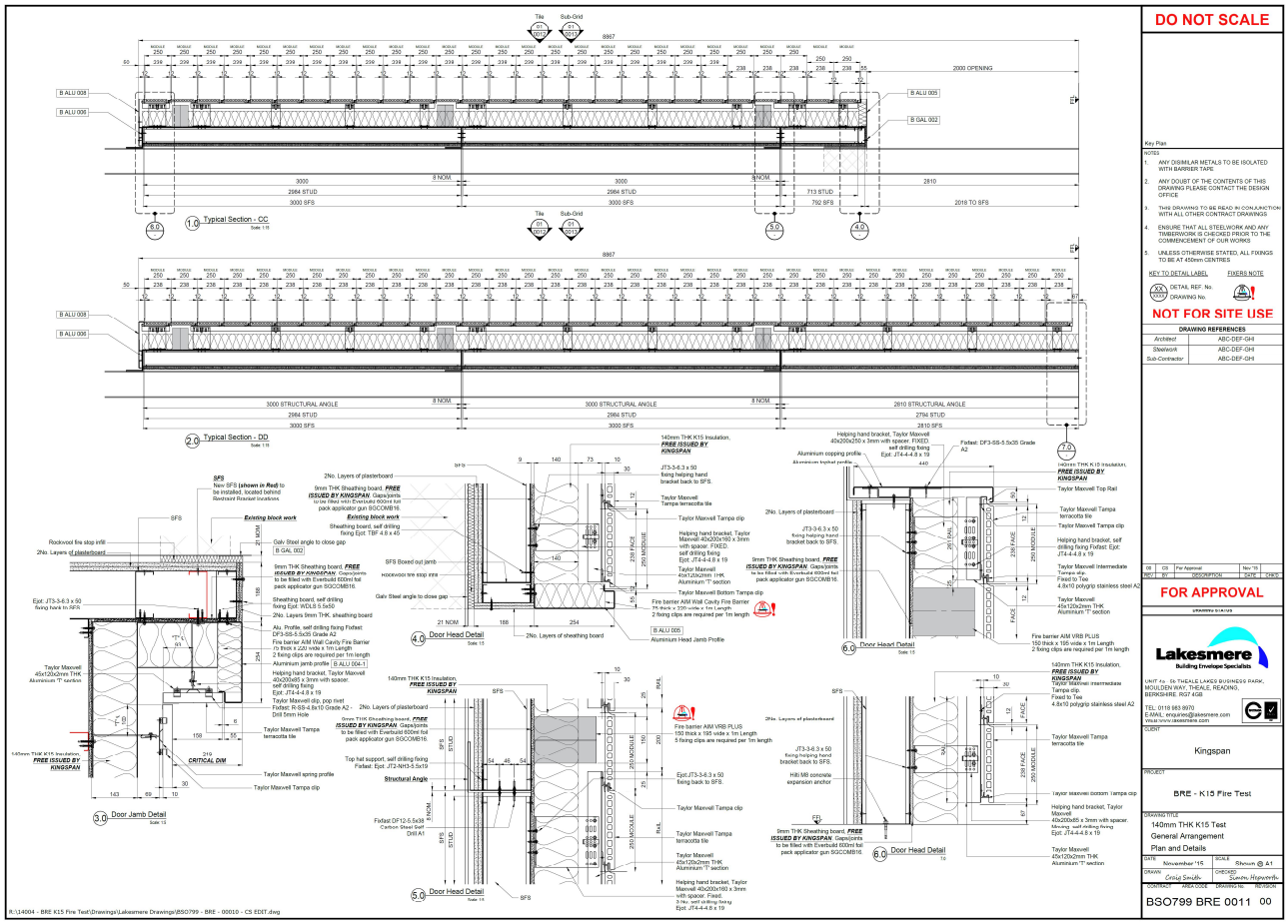

Figure 4. Product details

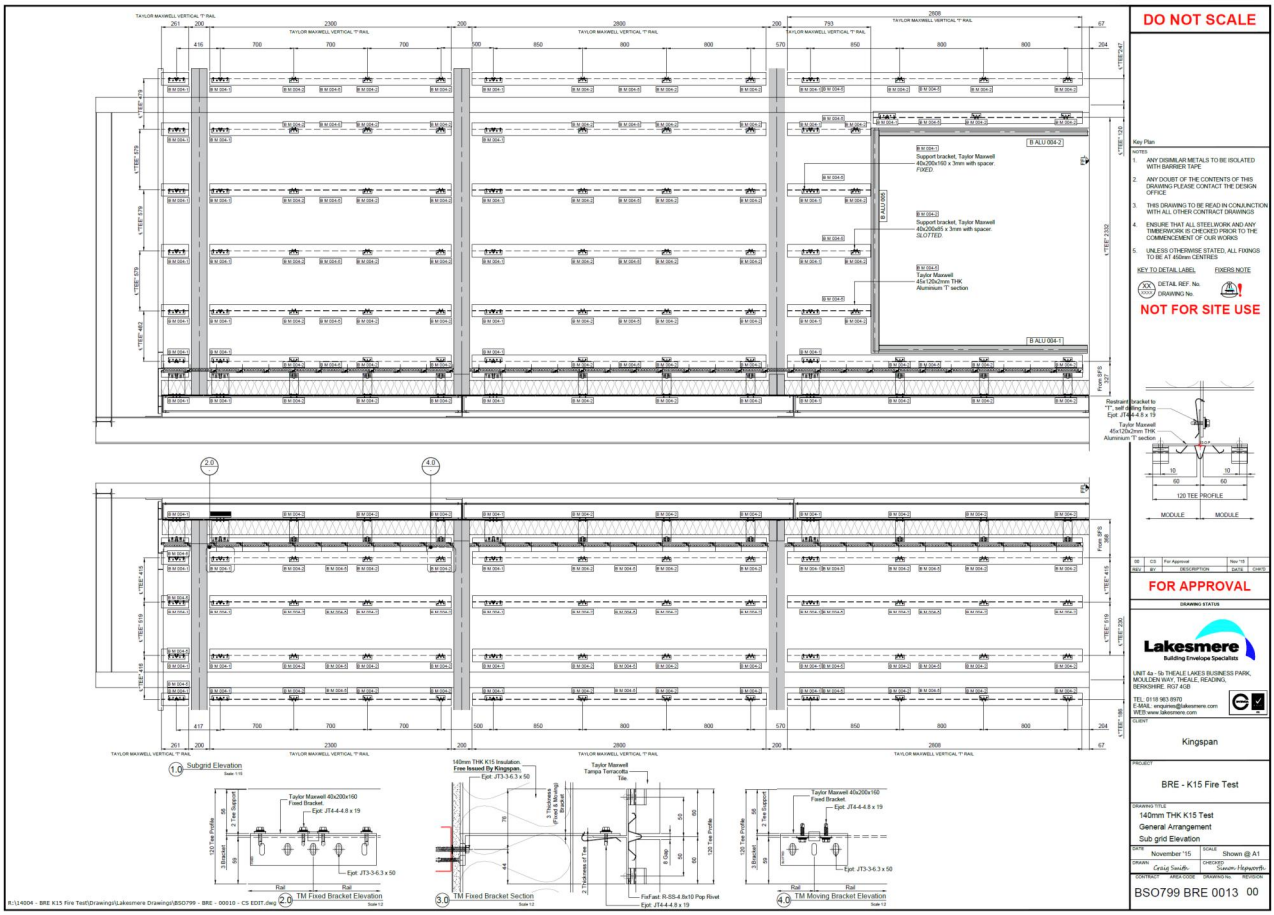

Figure 5. Product details

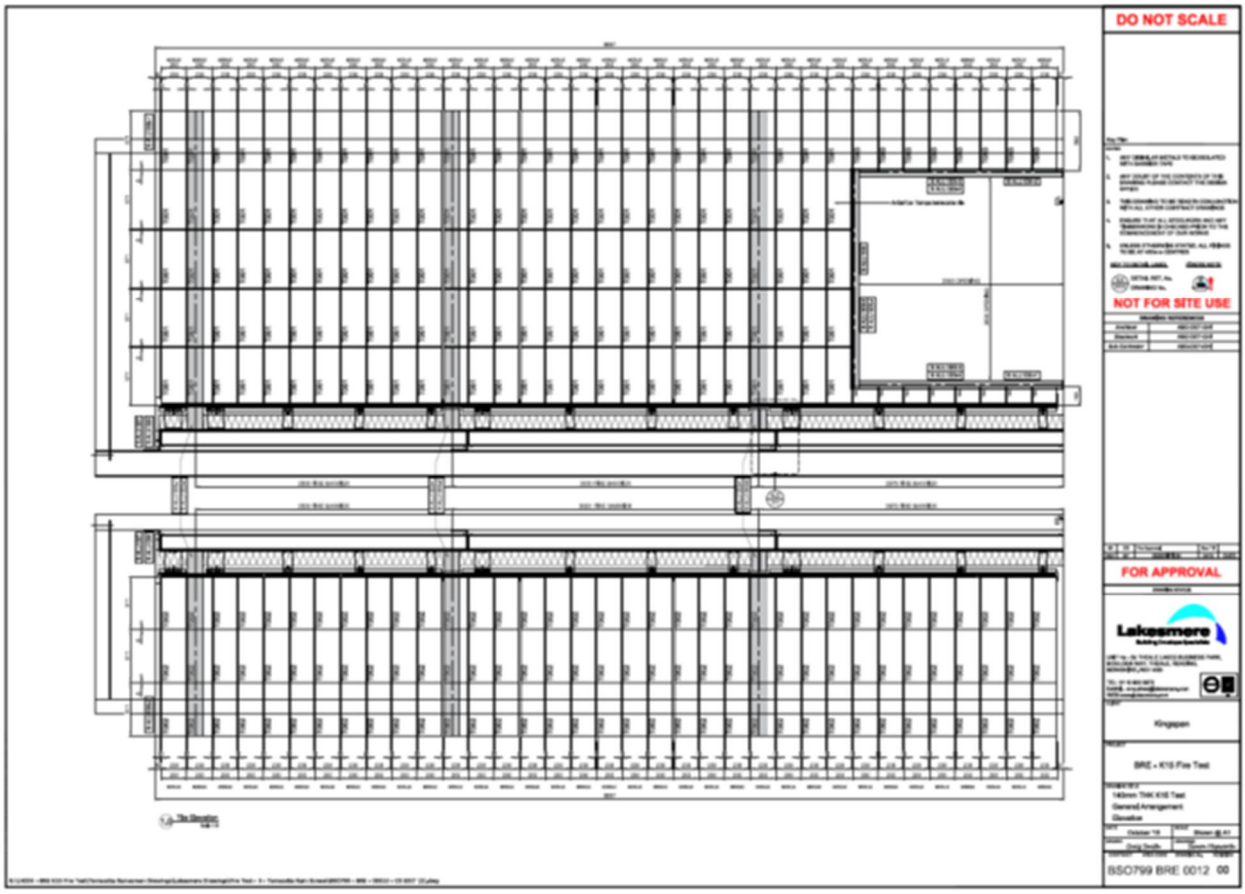

Figure 6. Product details

4 Supporting Evidence

4.1 Test reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
BRE Global, BRE	Kingspan Insulation Ltd	P100184-1000 issue 2	BS 8414-2: 2005

4.2 Test results

Test method & test number	**Parameter**	**No. tests**	**Results**	
			Fire spread test result time, t_s (min)	**Compliance with parameters in Annex B BR135:2013**
BS 8414-2: 2005	External fire spread	1	>15 minutes	Compliant
	Internal fire spread Cavity 1		>15 minutes	Compliant
	Internal fire spread Insulation layer		>15 minutes	Compliant
	Internal fire spread Cement particle board		>15 minutes	Compliant
	Internal fire spread Cavity 2		>15 minutes	Compliant
	Internal fire spread Plasterboard		>15 minutes	Compliant

4.3 Mechanical Performance

The test was 60 minutes in duration. There was partial collapse of rain screen tiles on both the main and wing walls up to a height of 3.5 to 4m, with 4 full rows lost on the main wall in columns 16 tiles high. The wing wall lost 9 tile in a single column.

4.3.1 Insulation Layer.

It was noted that the insulation layer continued to burn past the 30 minute mark with flaming combustion visible in the insulation at 3.5m mark until 60 minutes at which point any remaining flaming was fully extinguished.

5 Classification and field of application

5.1 Reference of classification

This classification has been carried out in accordance with Annex B of BR 135 – 'Fire performance of external thermal insulation for walls of multi-storey buildings.' Third Edition 2013.

5.2 Classification

The system described in this classification report has been tested and met the performance criteria set in Annex B of BR 135:2013.

5.3 Field of application

This classification is valid only for the system as installed and detailed in Section 2 of this classification report and the associated details found in the related test reports, referenced in Section 4.

6 Limitations

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

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons, it is recommended that the relevance of test and classification reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test or classification to ensure that they are consistent with current practices, and if required may endorse the report.

Report Ends