

BRE Global Classification Report

Kingspan Insulation Cladding system with a Terracota tile rainscreen. Classification of fire performance in accordance with BR 135: 2013 Annex B

Prepared for: Kingspan Insulation

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

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Product name: Kingspan K15 insulated system with a ventilated terracotta rain screen

Classification report No.: 291642

Issue number: 2

Date of issue: 27 March 2015

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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.



2 Details of the Classified Product

2.1 Description of substrate

The test specimen was installed onto face 3 of the BRE Global External Cladding Test Facility. This is a multi-faced test facility constructed from steel with the cladding system was affixed to the steel substructure.

2.2 Description of product

Full details of the system specification and installation details have been provided by the client and are summarised in the following section and in Figures 1 to 5.

The system, as built comprised of:

- Double layer of 12.5 mm wall board.
- 150mm steel frame.
- 12mm Cement sheathing board.
- Aluminium Top hat section
- Aluminium Helping hand brackets
- Lamatherm CW-RHS Horizontal Intumescent expanding fire break
- Lamatherm CW-RSV Vertical non expanding fire breaks
- 80mm K15 Kooltherm insulation board
- 30mm Taylor Maxwell Standard Classico tile (Grey)

2.3 Installation of cladding System.

2.3.1 Steel substructure and fixings

A sectional steel frame system (SFS) was installed between the floor slab hangers on the main cladding wall 3, with horizontal base and head tracks fixed to the steel substrate. Vertical rails were installed at nominal 600mm centres to from 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 based calcium sheathing board was fixed to the front of the SFS.

2.3.2 Cladding system

A single layer of 80mm Kingspan K15 Kooltherm insulation board was pushed into position between Lakesmere Tophat sections and mechanically attached to the sheathing board with 100mm self-tapping screws and plastic washers. An array of Taylor Maxwell standard aluminium helping hand brackets were mechanically fixed to the Lakesmere Tophat section using 5.5 x 25mm self-drilling \ tapping screws. The Tophat sections were filled with K15 insulation and sealed with aluminium tape and mechanically fixed to the sheathing board using self-drilling 5.5 x 50mm screws.



2.3.3 Fire breaks

Three horizontal ventilated fire breaks (Lamatherm CW_RHS Ventilated cavity barrier) were fixed in a continuous strip and fixed back to the sheathing board with the manufactures recommended fixings. Vertical non ventilated barriers (Lamatherm CW_RHS Non ventilated cavity barrier) were installed at the outer edges for the cladding system and around the hearth opening.

2.3.4 Rain screen

Taylor Maxwell (Argeton) Classico 30mm x 250mm x 600mm tiles were held in place using Taylor Maxwell Classico tiles clips and Fixfast R-AC 4.8 x 15mm rivets, which were fixed to the Taylor Maxwell Leg Tee support.

2.4 Installation of Specimen

All test materials were supplied and installed 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.



3 Product Specification

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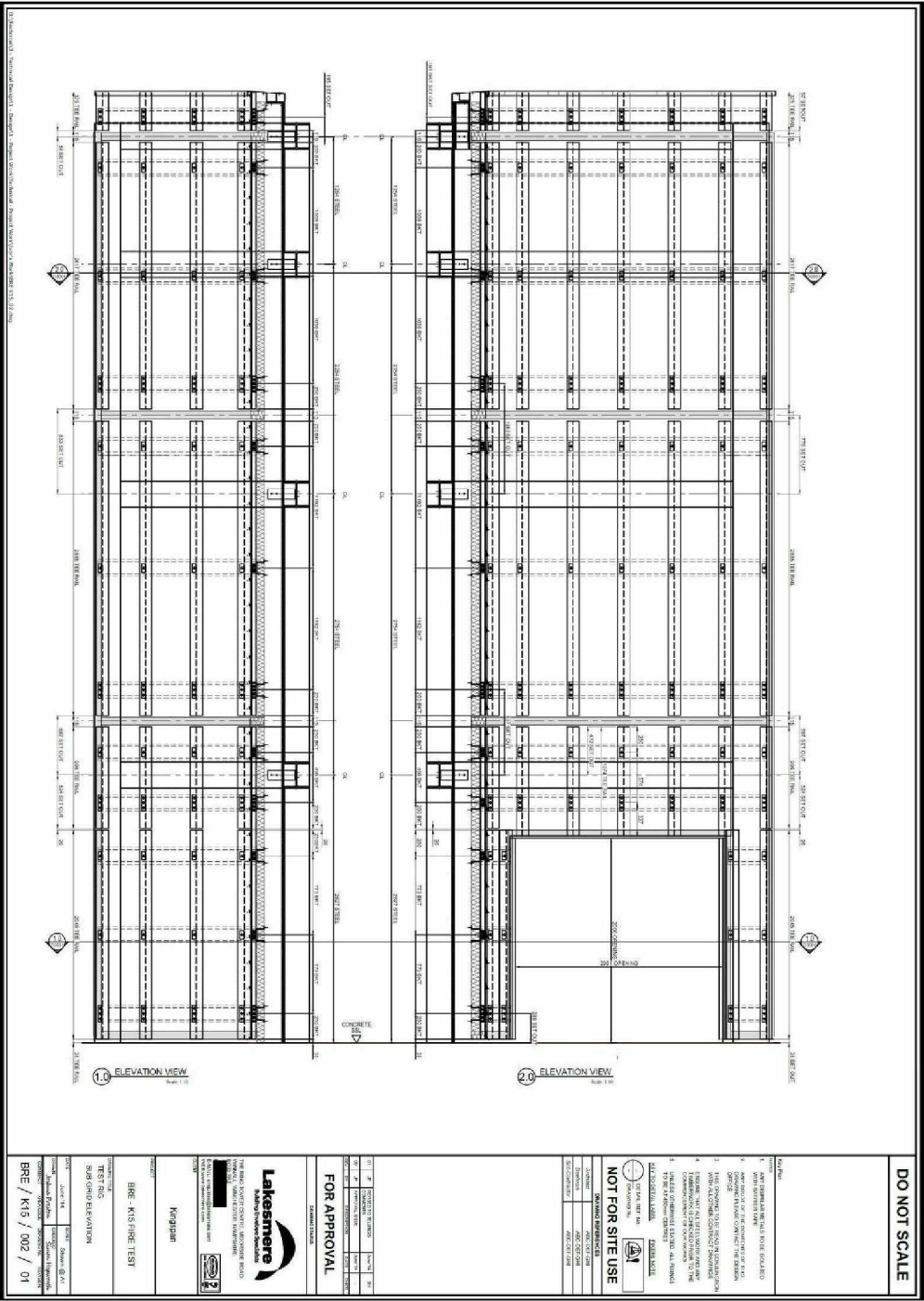


Figure 1. Test rig sub grid elevation

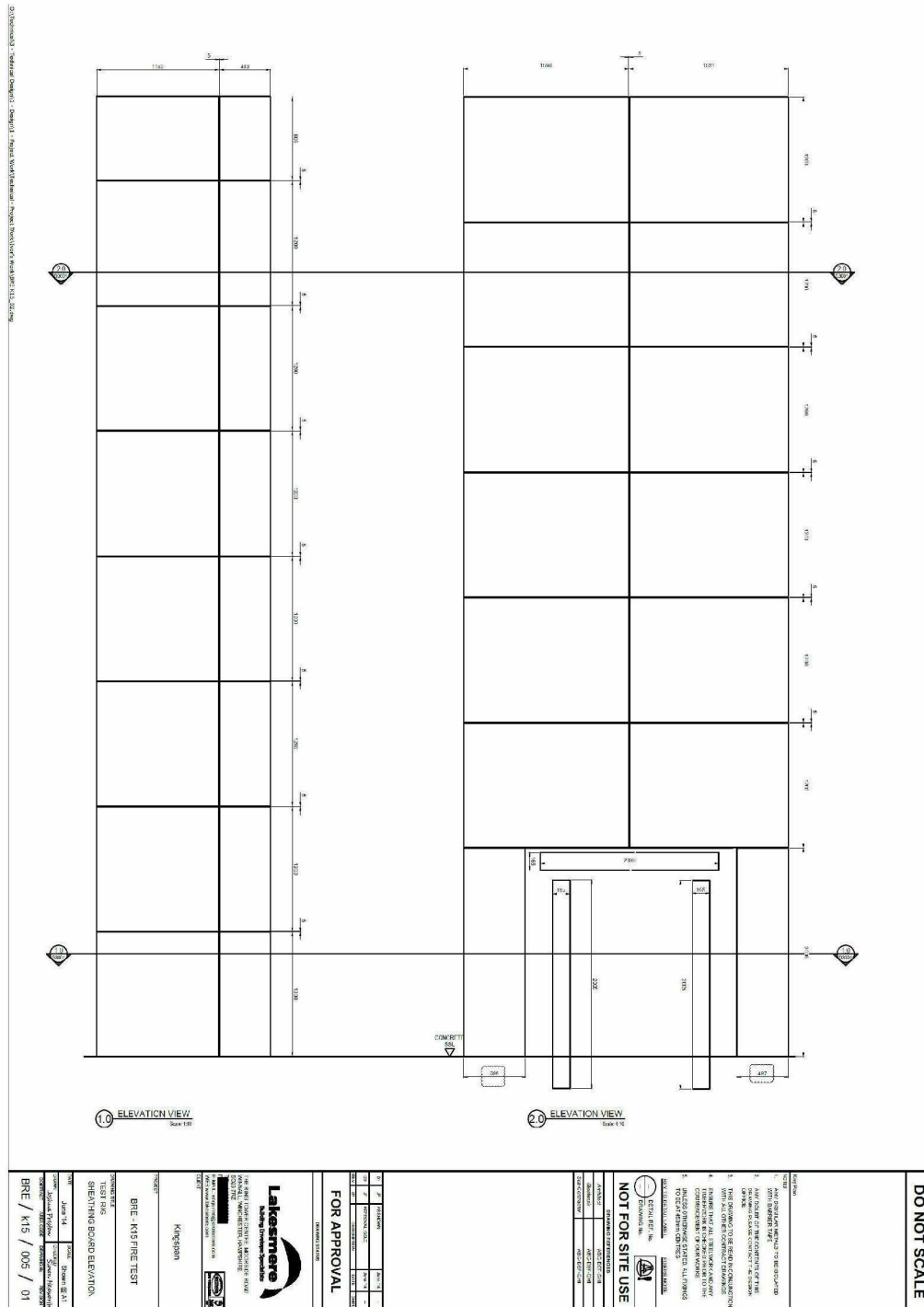


Figure 2. Test Rig sheathing board elevation

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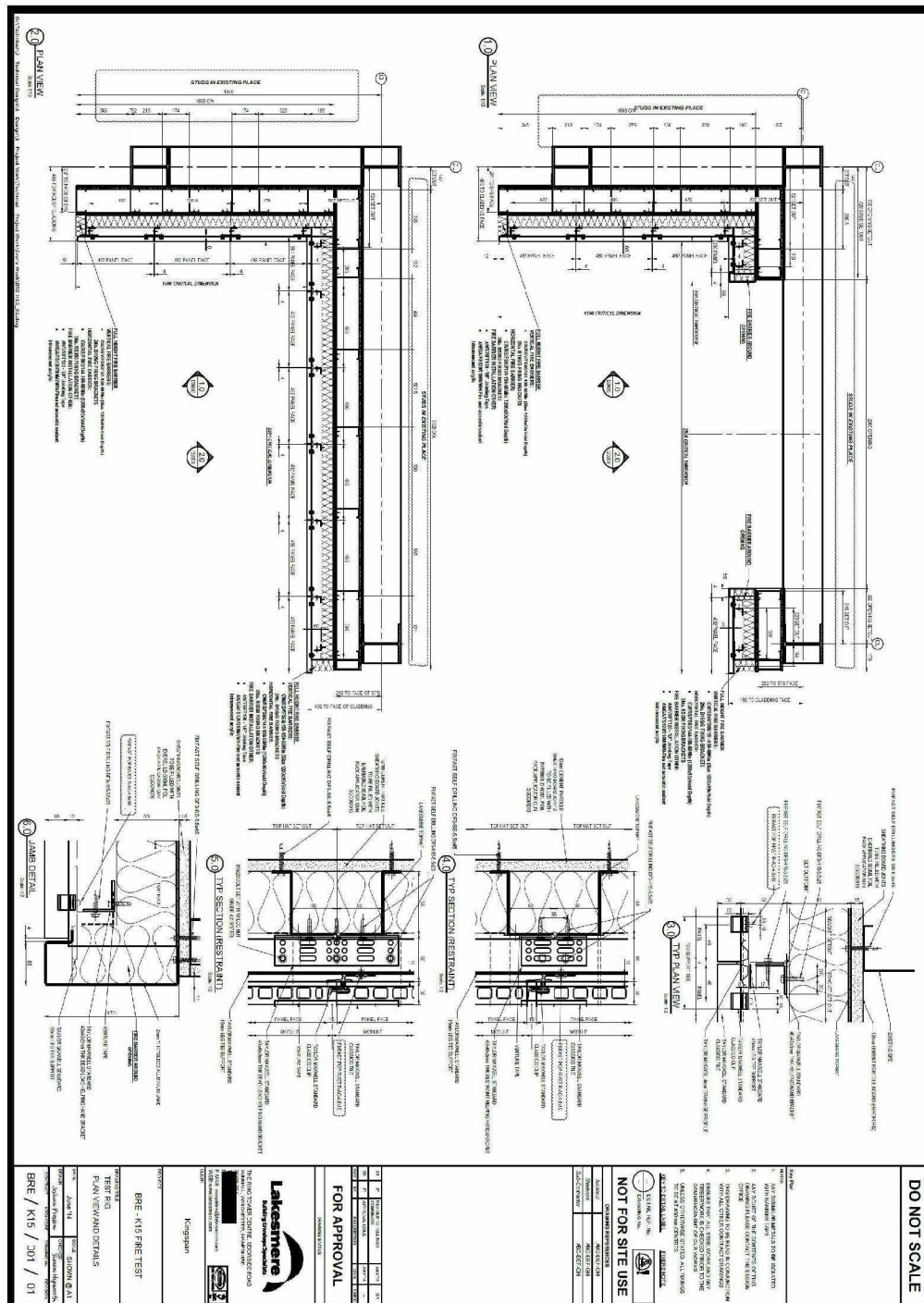


Figure 3. Test rig plan view and details

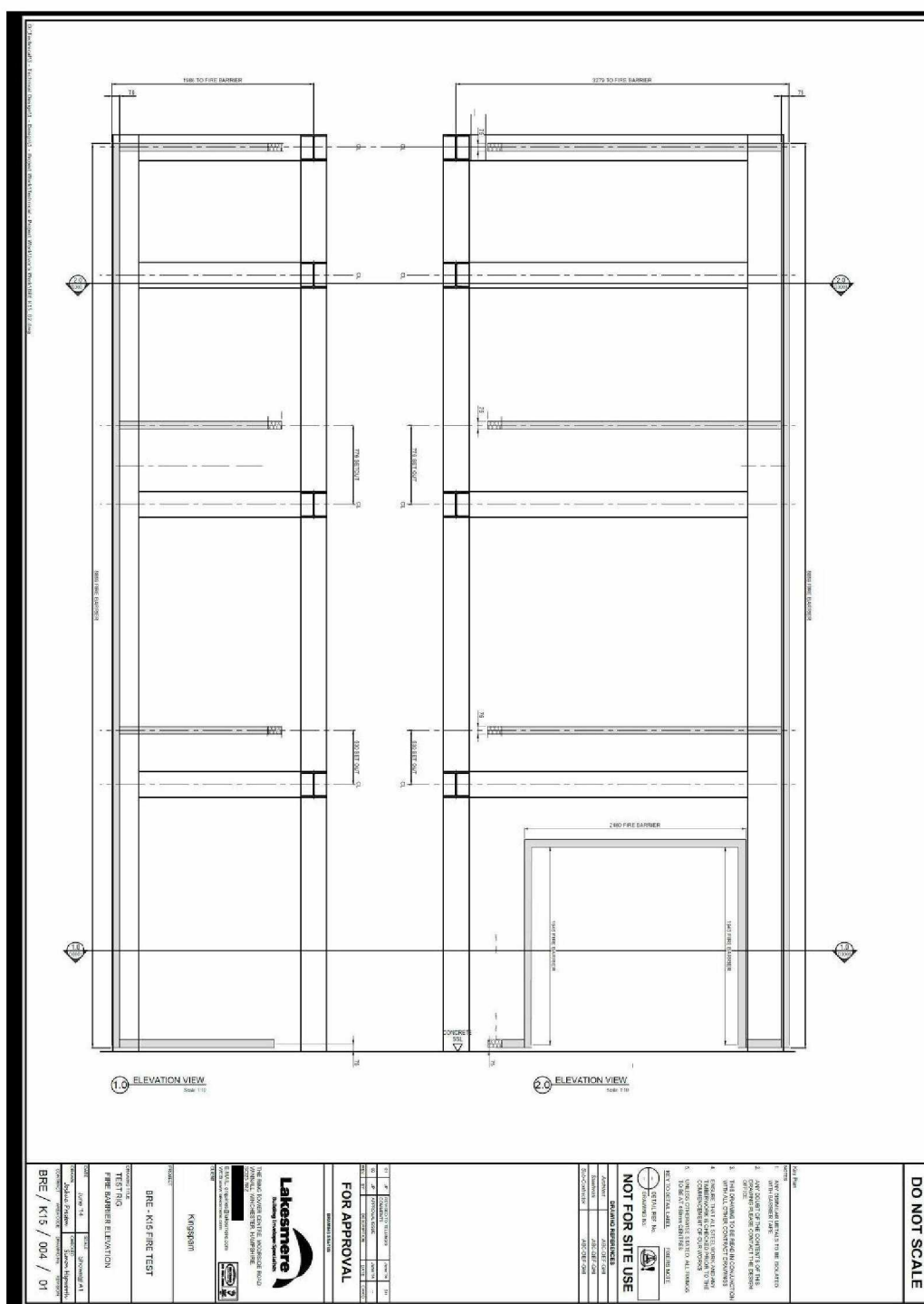


Figure 4. Test rig fire barrier elevation.

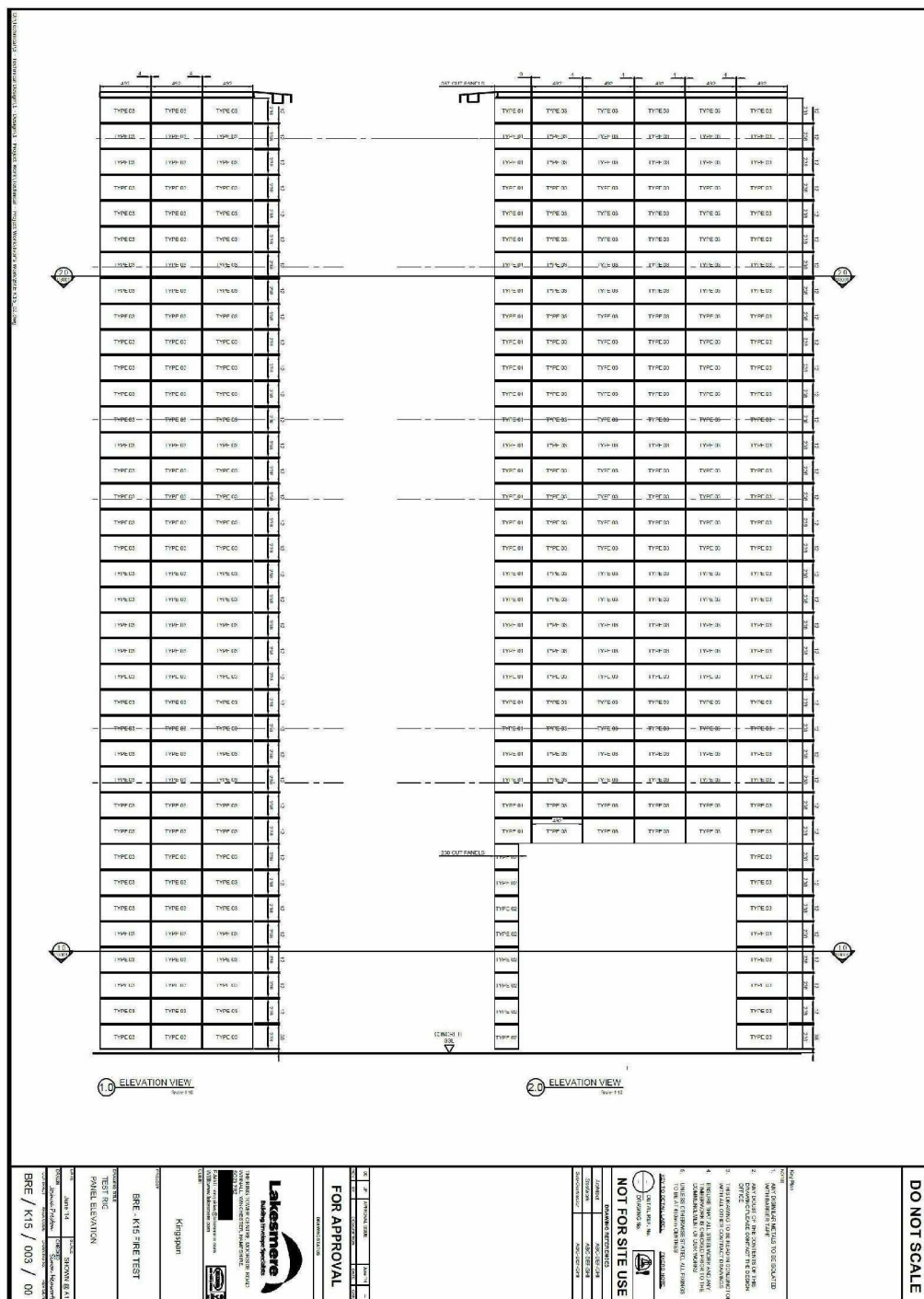


Figure 5. Test rig panel elevation



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 Limited	Test report 297099 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
	Cavity behind rainscreen (cavity 1)		>15 minutes	Compliant
	Internal fire spread Insulation layer		>15 minutes	Compliant
	Cavity formed by Steel frame (cavity 2)		>15 minutes	Compliant
	Internal fire spread Burn through		>15 minutes	Compliant



4.3 Mechanical Performance

The system was tested for the full 60 minute test duration.

Flaming was observed within the insulation at approximately 2.0m above the top of the hearth after the crib was extinguished. Burning was no longer visible in this location after 49mins from crib ignition.

During the testing of the system, some tiles detached from the system and fell to the ground. Details of this are given in the table below.

Time	Location of panel
21:15 (mins:secs)	Tiles detached from the centreline main face above hearth
27:43 (mins:secs)	Tiles detached on the centreline of the main face approximately 2.0m above top of hearth
28:30 to 29:59 (mins:secs)	Tiles detached from the centreline 2.1m to 2.3m above the hearth

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.

This classification report is issue 2 of report 291642. This report contains up issued drawings included at the client's request. BRE classification report 291642 issue 1 dated 5th March 2014 has been withdrawn with effect from the date of this report.