Kingspan Limited BENCHMARK Evolution Panel. Classification of fire performance in accordance with BR 135: 2013 Annex B.

Prepared for:
Kingspan Limited
Greenfield Business Park No 2,
Greenfield,
Holywell,
Flintshire.
CH8 7GJ.

15 May 2014
Client report number
Classification report: 289585
Issue number 1

Protecting People, Property and the Planet

Contents

CLASSIFICATION OF FIRE PERFORMANCE

IN ACCORDANCE WITH BR 135:2013 ANNEX B

Sponsor: Kingspan Limited, Greenfield Business Park No 2.Greenfield, Holywell, Flintshire. CH8 7GJ.

Prepared by: BRE Global Ltd, BRE, Bucknalls Lane, Garston, Watford, WD25 9XX, England

Product name: BENCHMARK Evolution panel – 150mm.

Classification report No.: 289585

Issue number: 1

Date of issue: 15th May 2014

This classification report consists of fifteen 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 3.

2 Details of classified product

2.1 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.

2.2 Description of substrate

The test specimen was installed onto face 4 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.

2.3 Description of product

The system, as tested, consisted of;

- BENCHMARK Panel with 0.595mm outer skin and 0.32mm inner skin constructed from double sided corrosion coated S220 grade steel, filled with Kingspan Ltd Ecosafe PIR of 150mm thickness.
- Arcelor External flashings of 0.595 mm thickness
- SFS Intec self-drilling, self-tapping screws
- SXC5 S16 – 5.5 x 160 panel fixers
- SXC5 S16 – 5.5 x 185 panel fixers
- SX14 S16 – 5.5 x 66 panel fixers
- SL2 S S16 5.5 x 28 stitcher fasteners
- Knauf Insulation Rocksilk Krimpact 200mm x 25mm thickness

2.3.1 Installation of cladding System.

2.3.1.1 Steel substructure and fixings

A substructure was constructed using mild steel 100mm x 100mm and 150mm x 100mm box sections. These were welded to the BRE cladding facility and the BENCHMARK panels were fixed to the sub-frame with 160mm and/or 185mm through fasteners. All flashings were fixed using 66mm and 28mm fasteners.

2.3.1.2 Panel Insulation layer

The insulation core was produced by Kingspan Ltd and was described as ECOSAFE HCFC Free Polyisocyanurate, with a nominal thickness of 150mm. The panel skins were auto-bonded to the insulation during the curing process.

The insulated panels were installed with the long joint in the horizontal orientation. The system was tested with a vertical expansion joint as detailed in Figure 3.

2.3.1.3 Fire breaks

There were no fire breaks installed in the system.

2.3.1.4 Panel Skins

Two metallic skins materials were used in the construction of panel and were described as:

- Arcelor double sided corrosion coated S220 grade steel of 0.595 mm (external face) with a coat thickness of 25 to 50 microns
- Dong Bu double sided corrosion coated S220 grade steel of 0.32 mm (internal face) with a coat thickness of 15 microns

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.

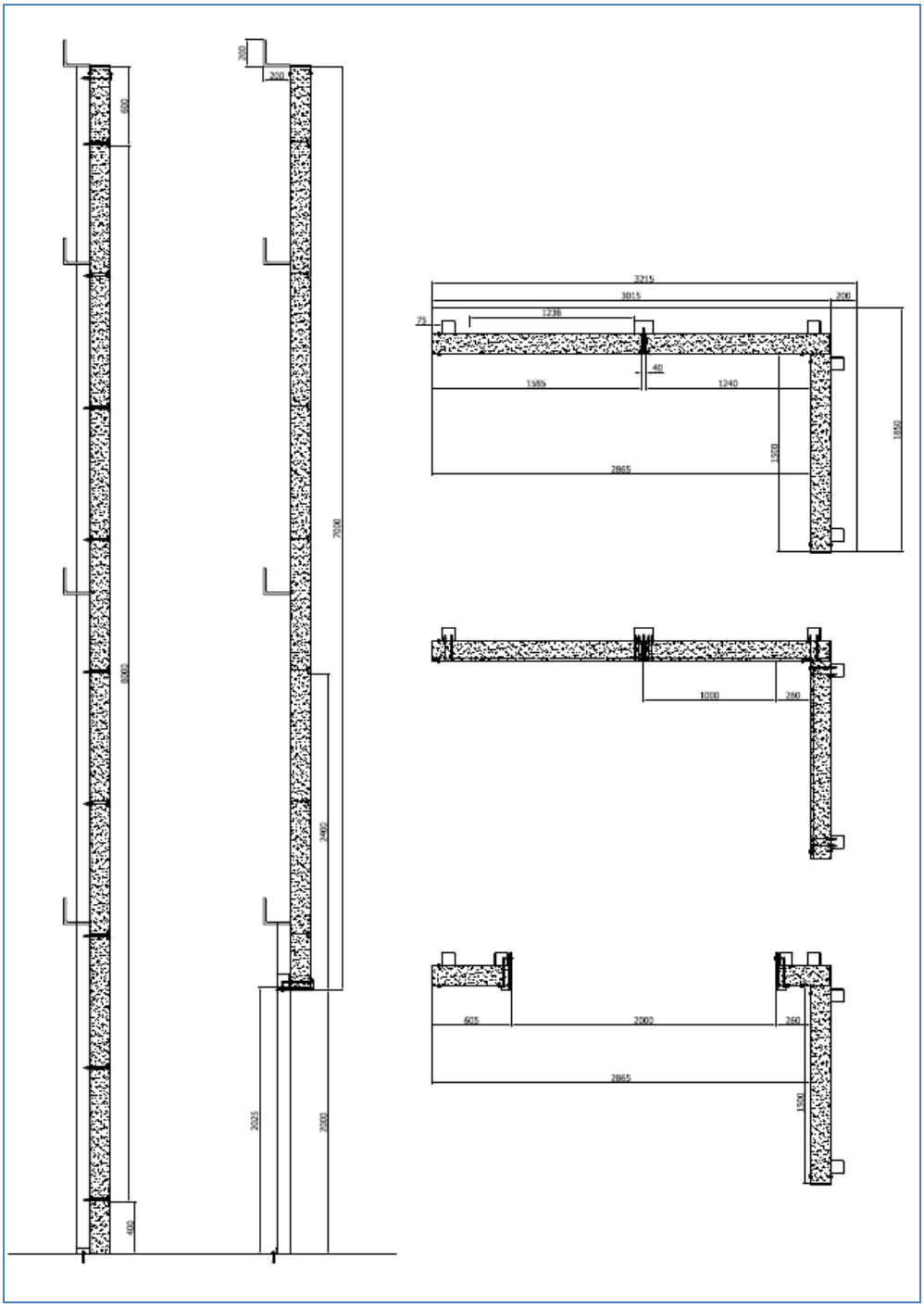

Figure 1. Construction drawing of the system showing corner detail

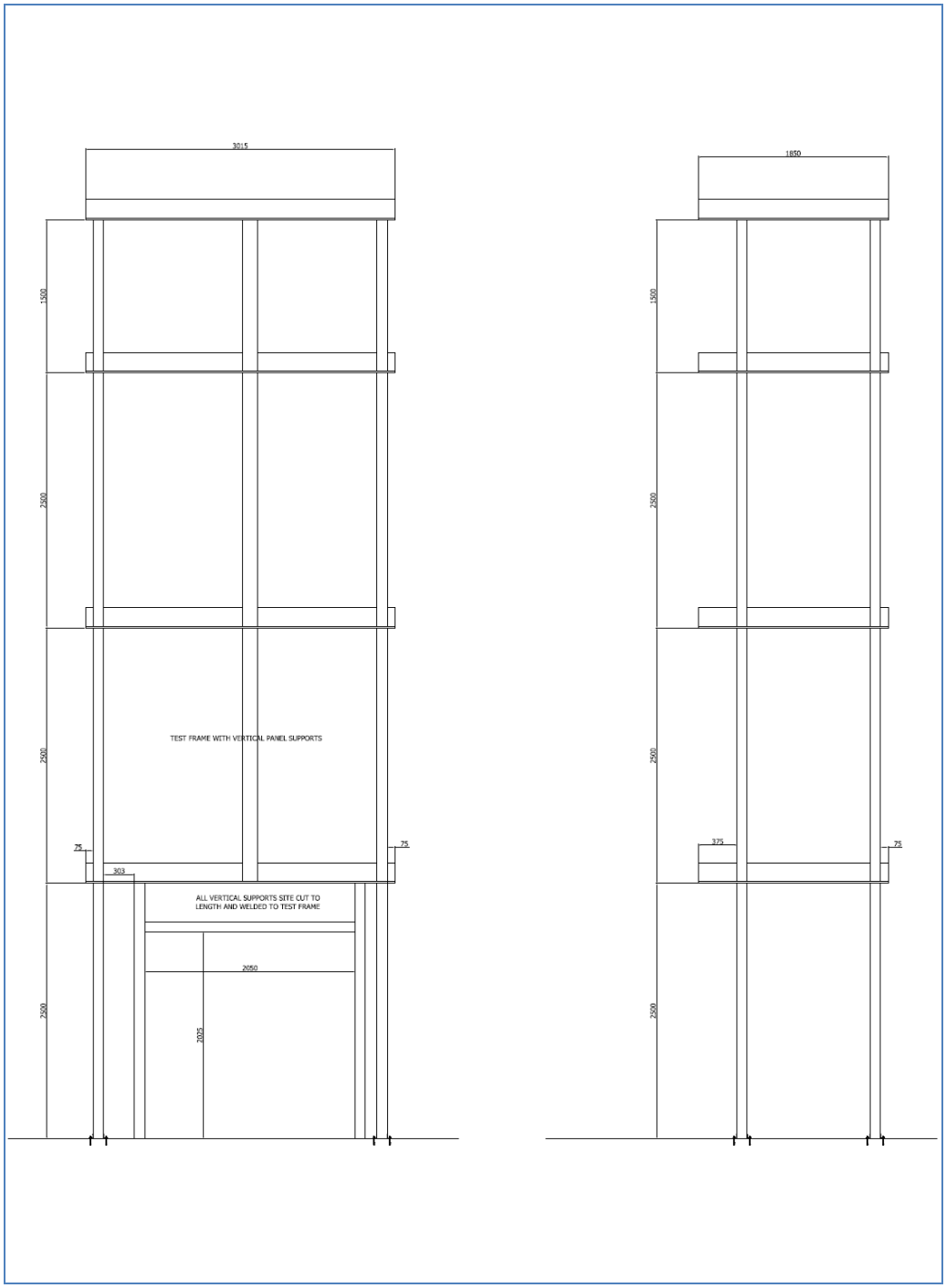

Figure 2. Construction drawing of the system - framing.

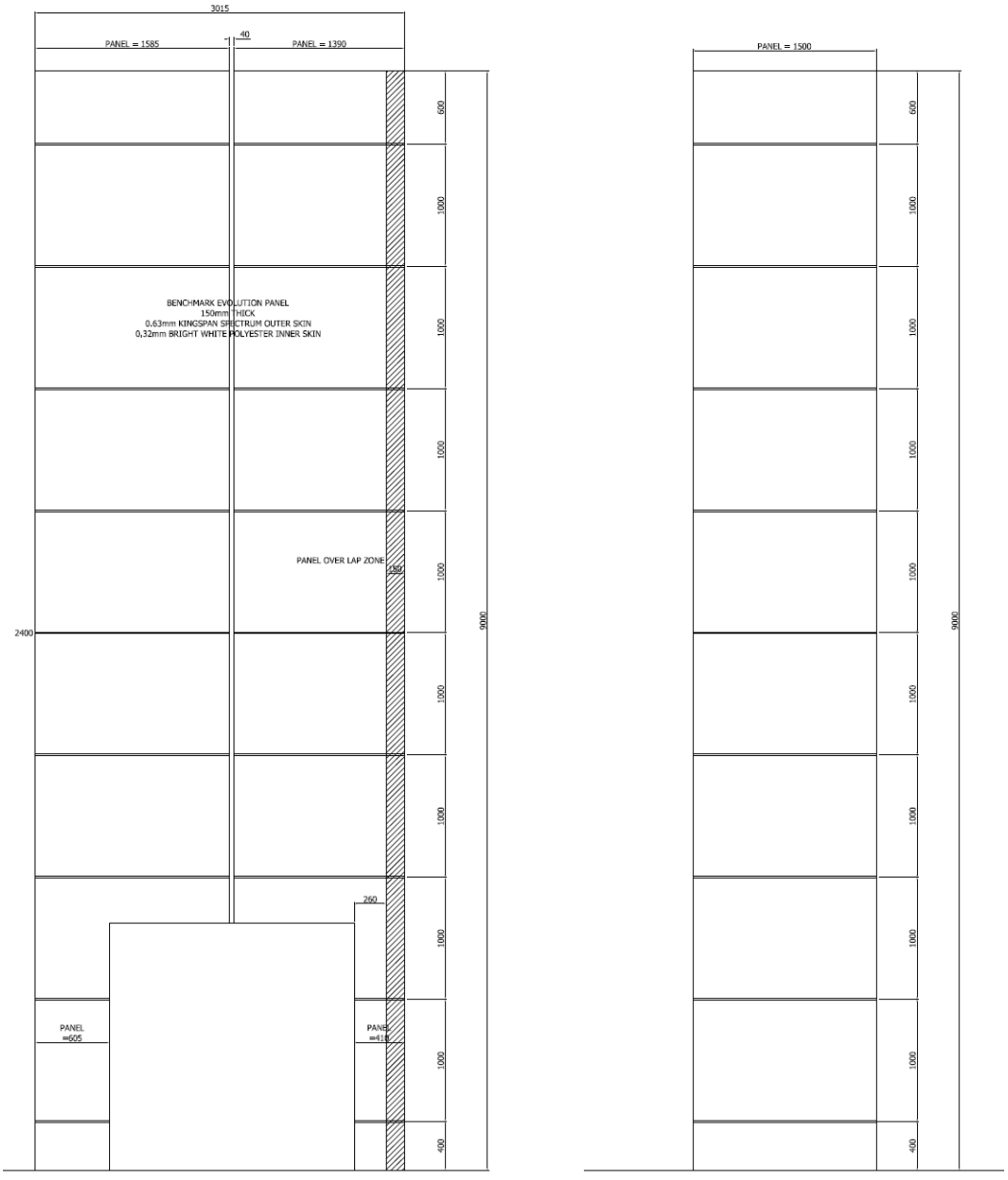

Figure 3. Construction drawing of the system - the panel layout & vertical joint location.

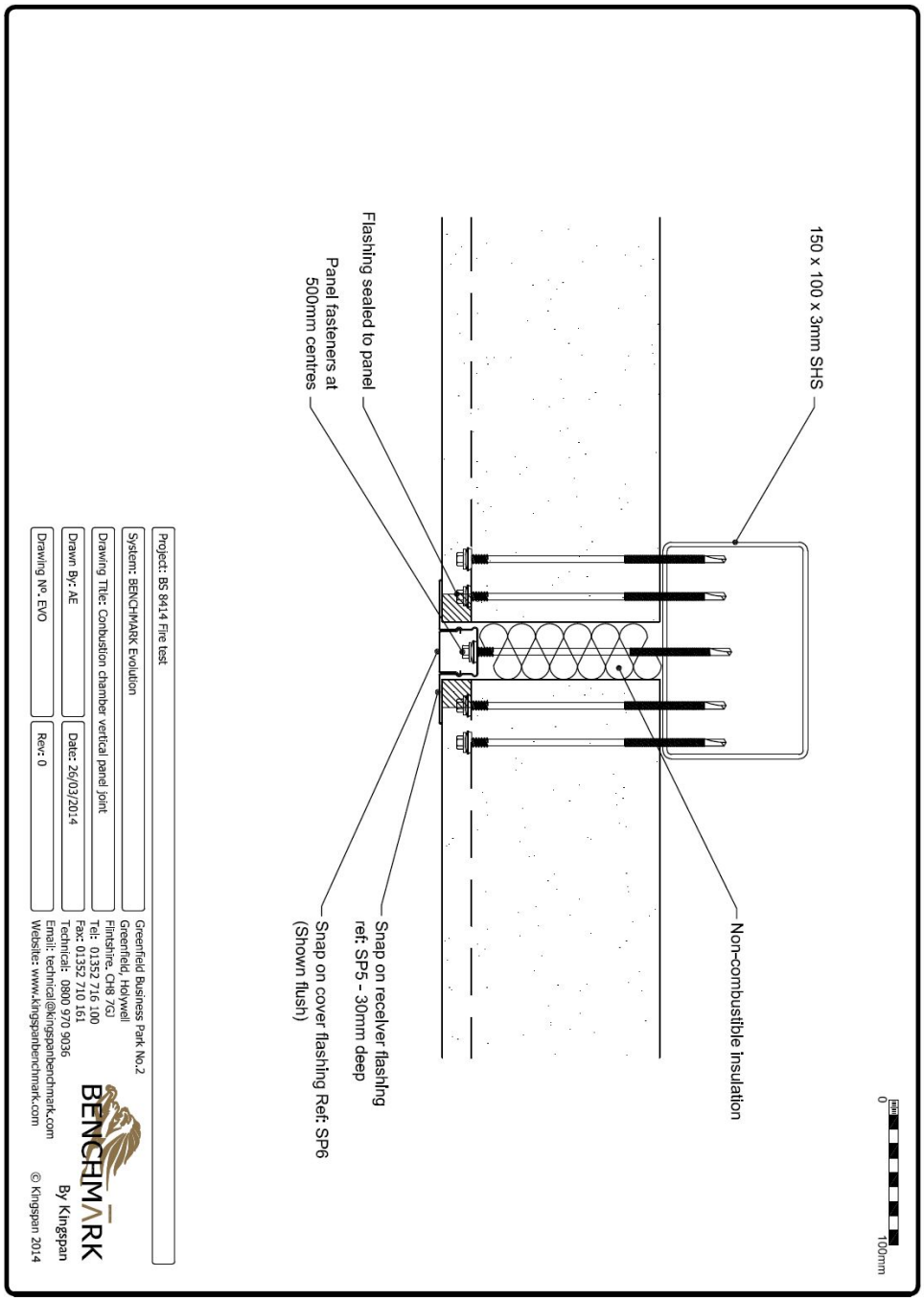

Figure 4. Construction drawing of the system – vertical joint detail

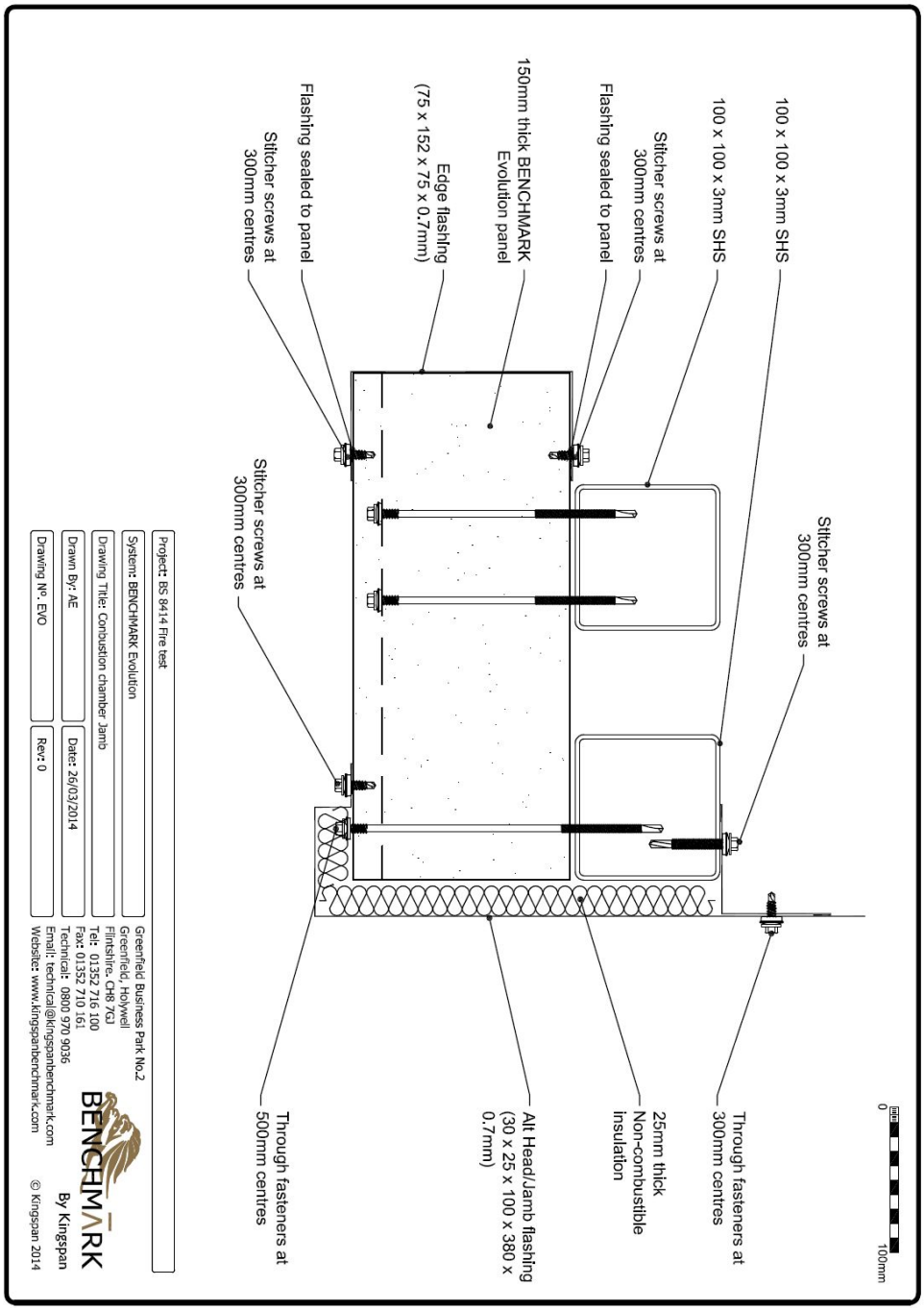

Figure 5. Construction drawing of the system – chamber detail

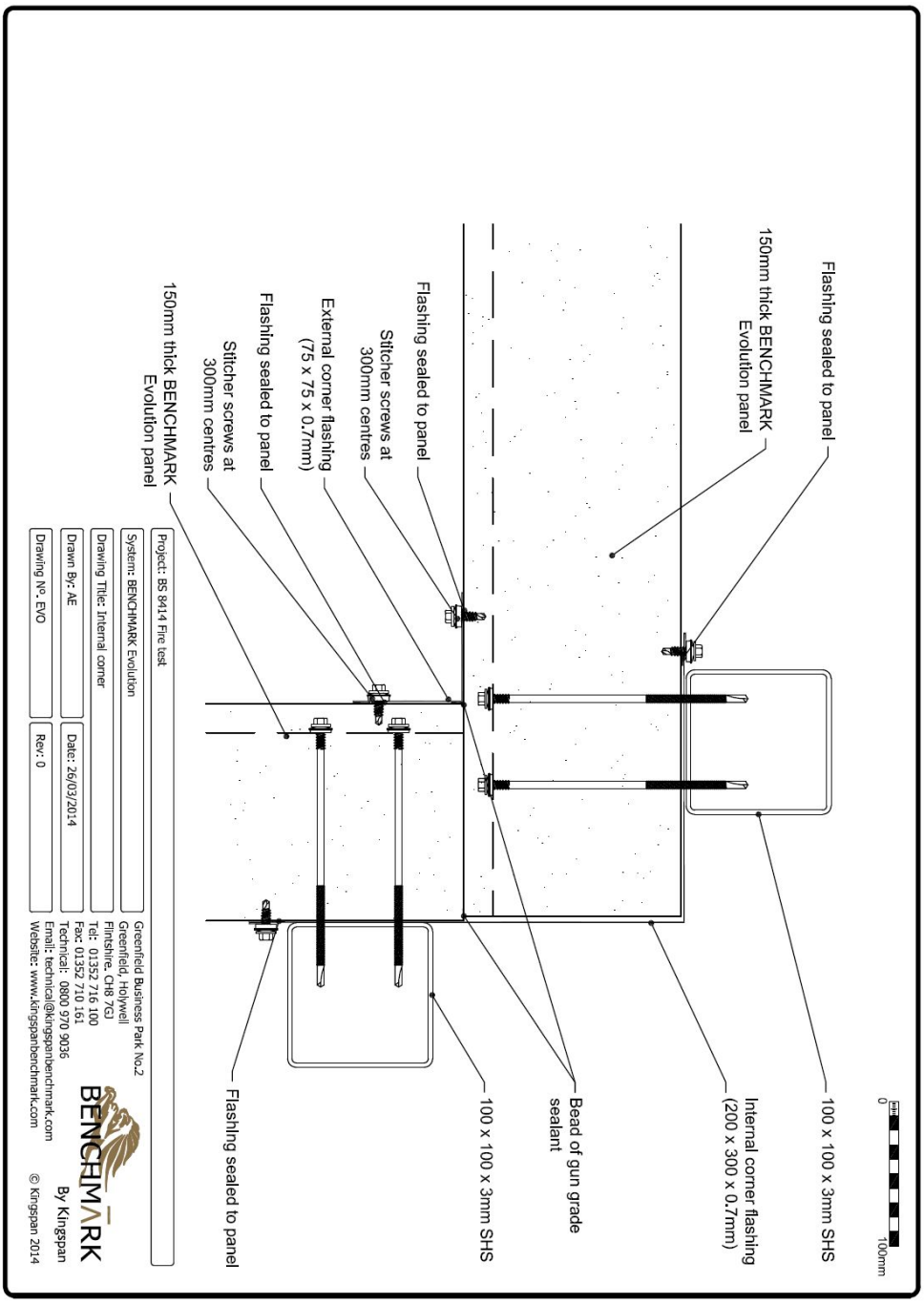

Figure 6. Construction drawing of the system - internal corner joint detail.

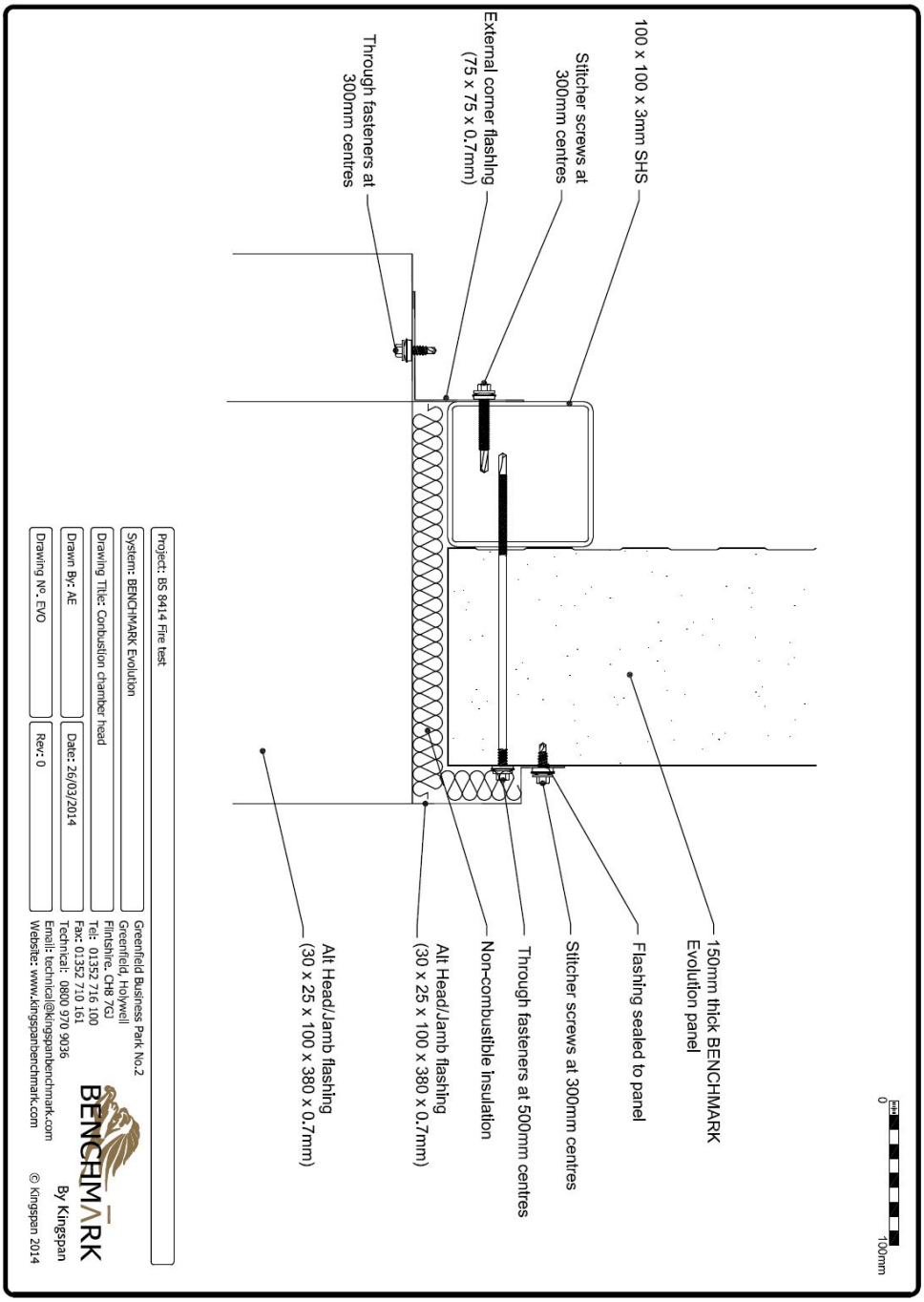

Figure 7. Construction drawing of the system – chamber head detail.

3 Test reports in support of classification

3.1 Test report

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
BRE Global, BRE	Kingspan Limited	Test report 293939 dated15th May 2014	BS 8414-2: 2005

3.2 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 Insulation layer		>15 minutes	Compliant
	Internal fire spread Burn through		>15 minutes	Compliant

3.3 Observations

Mechanical Performance

There was no collapse of the system.

Visible flaming of the system continued after the crib was extinguished at 30 minutes up to a maximum height of 2.5 m above the combustion chamber, this gradually diminished and all visible flaming had ceased by 50 minutes (20 minutes after crib extinguished).There was no flaming debris or pool fires.

4 Classification and field of application

4.1 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.

4.2 Classification

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

4.3 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 3.

5 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.

SIGNED

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S J Howard
Principle Consultant
For and on behalf of BRE Global Ltd

APPROVED

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T Baker
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For and on behalf of BRE Global Ltd

Date: 15 May 2014

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