

BRE Global Classification Report

Gebrik Rainscreen Cladding System. Classification of fire performance in accordance with BR 135: 2013 Annex B

Prepared for: Isosystems and Aquarian Cladding Systems

Date: 21 September 2015

Report Number: P100838-1001 issue 2

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

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Product name: Gebrik Rainscreen Cladding System

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This classification report consists of 17 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 report is issue 2 of report number P100838-1001. Report number P100838-1001 issue 1 dated 18th September 2015 has been withdrawn following changes to the product description.



2 Details of the Classified Product

2.1 Description of substrate

The cladding system affixed to the steel substructure forming the BS8414 Part 2 test frame.

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. The build-up of the system is shown in figures 1-6, and (in order from the structural frame to the outer panels) comprised of:

- Double layer of 12.5mm plasterboard
- 150mm light gauge steel frame (Kingframe) / 150mm Earthwool Flexi rock mineral wool insulation
- 12mm calcium silicate based cement building board (Y-wall)
- 15mm fire retardant battens
- 12mm calcium silicate based cement building board (Y-wall)
- 120mm K15 Kingspan insulation
- 1000mm x 75mm VRB Lite intumescent fire component installed both vertically and horizontally
- 60mm Gebrik panels, consisting of 43mm rigid polyurethane foam insulation (PUR) and 17mm façade brickslips and mortar

Further detail of the composition of the wall is given below:

A sectional light gauge steel frame system (SFS) was installed between the floor slab hangers on the cladding wall, with horizontal base and head tracks fixed to the steel substrate. Vertical rails were installed at varying centres to accommodate the cladding system on to the test rig. Refer to figure 1 for the actual spacings. Within the SFS was installed a 150mm layer of Earthwool Flexi.

A double layer of 12.5mm plasterboard was installed on the internal face of the SFS and a single layer of calcium silicate based cement building board was fixed to the front of the SFS. 15mm fire retardant battens were installed on the front of the calcium cement sheathing board, and on these was fixed a second layer of calcium silicate based cement building board. See figure 4 for a cross section of the system layout.

The insulation was directly fixed to the sheathing board using Ø4.8mm fixings and washers, incl 2no stainless steel washers. The joints between the individual sheets were taped with aluminium tape.

The insulation was 120mm Kingspan K15 panels supplied in 2.4m x 1.2m sheets.

The Gebrik cladding system was mechanically fixed directly into the sheathing board through Isofixing washers precast in the panels & corners and through the K15 using Gebrik system fixings. A horizontal 'starter' rail was installed at the base, which located the bottom of the first row of brick cladding panels and corners. The panels and corners were then installed row by row up the façade until the entire test area was fully clad. Once mechanically fixed, the horizontal and vertical chambers between panels and



corners were fully filled with expandable PU foam prior to the 'stitching' slips being applied with cement-based system adhesive. The entire façade was then pointed with mortar and allowed to cure for 13 days.

The horizontal and vertical firebreaks located within the cavity were VRB Lite barriers, measuring 1000mm x 75mm, and were installed in the following locations:

- Horizontal fire breaks were installed above the hearth (for the width of the main wall), approximately 900mm above the hearth (full width of main and wing walls), and aligned with the top of the level 2 'floor', and a final barrier was installed to close off the top of the system.
- A vertical firebreak was installed on the main wall to the left hand side of the hearth (between the wing and main walls) for the full height of the system. This was located approximately 430mm from the cement particle sheeting board layer on the wing wall.
- A second vertical fire break was installed on the wing wall for the full height of the system. This was located approximately 215mm from the cement particle sheeting board layer on the main wall.
- A third vertical fire break was installed to the right of the hearth and terminated at the horizontal fire break across the top of the hearth. This was approximately 450mm from the right hand edge of the system.

The hearth opening was faced with a 120mm deep Gebrik head reveal to close the system and K15 insulation. The cavity was closed with the fire treated timber batten applied horizontally and the SFS was clad with calcium cement board.

2.3 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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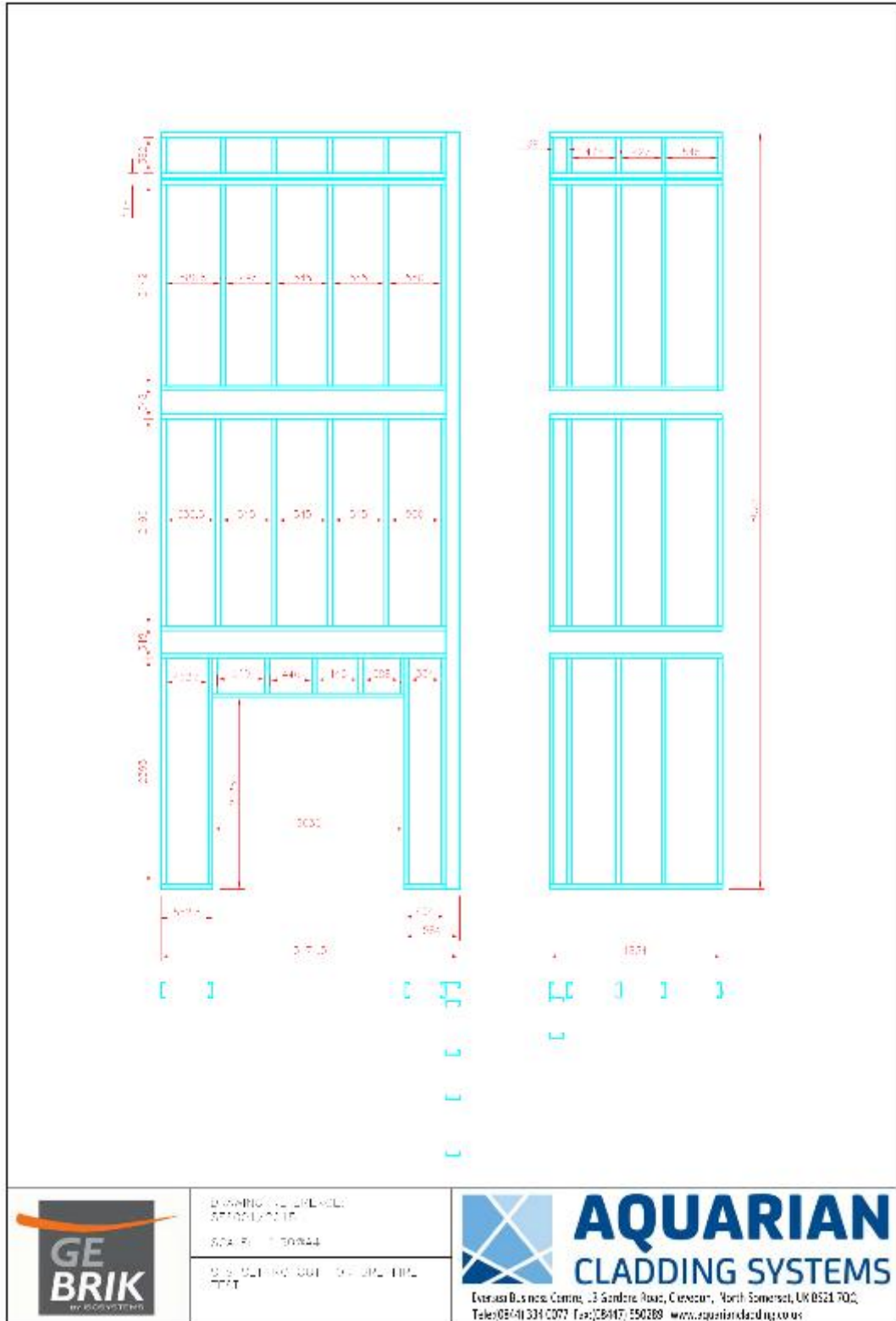


Figure 1. Steel frame system layout

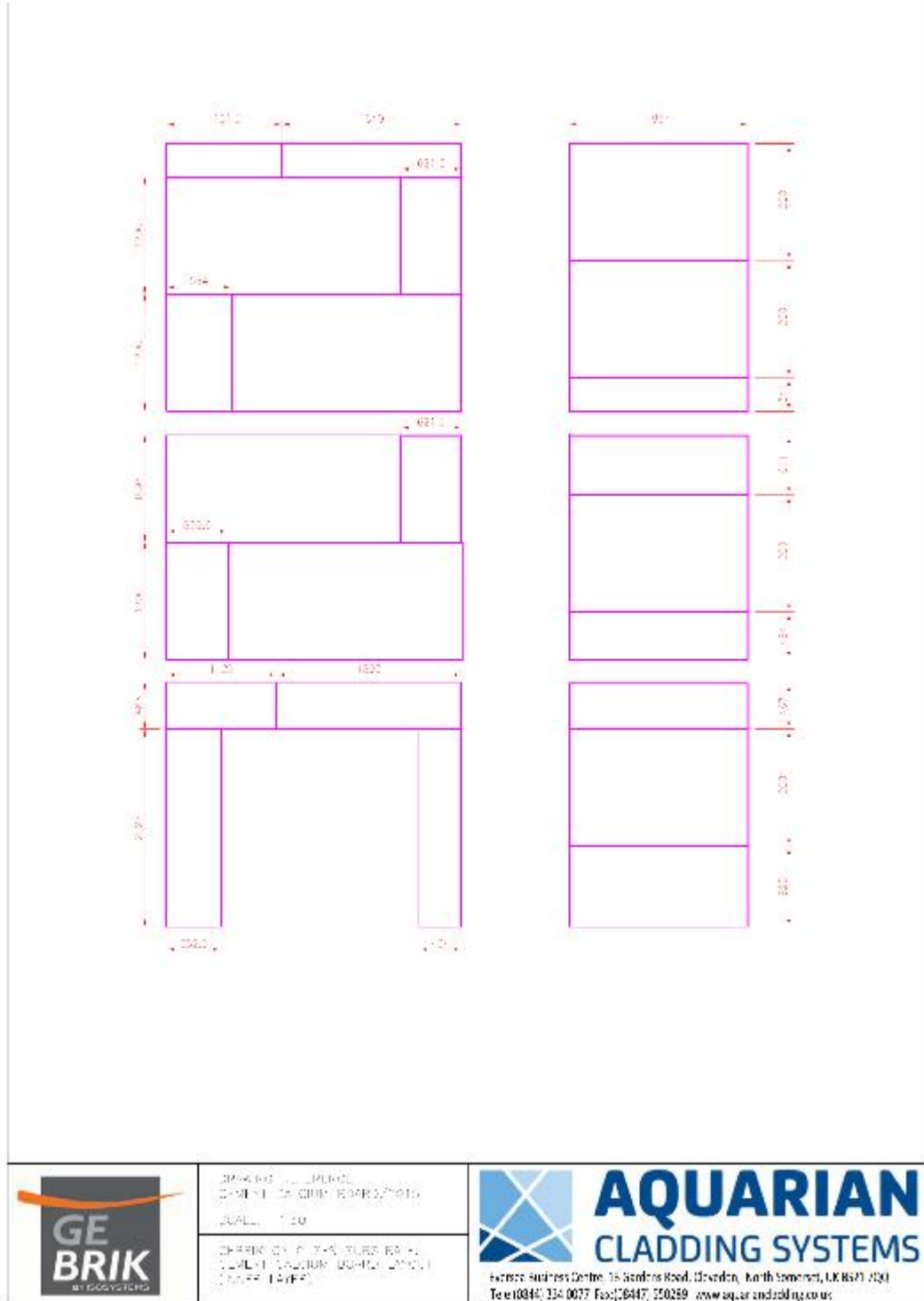


Figure 2. Layout and installation of the cement particle board

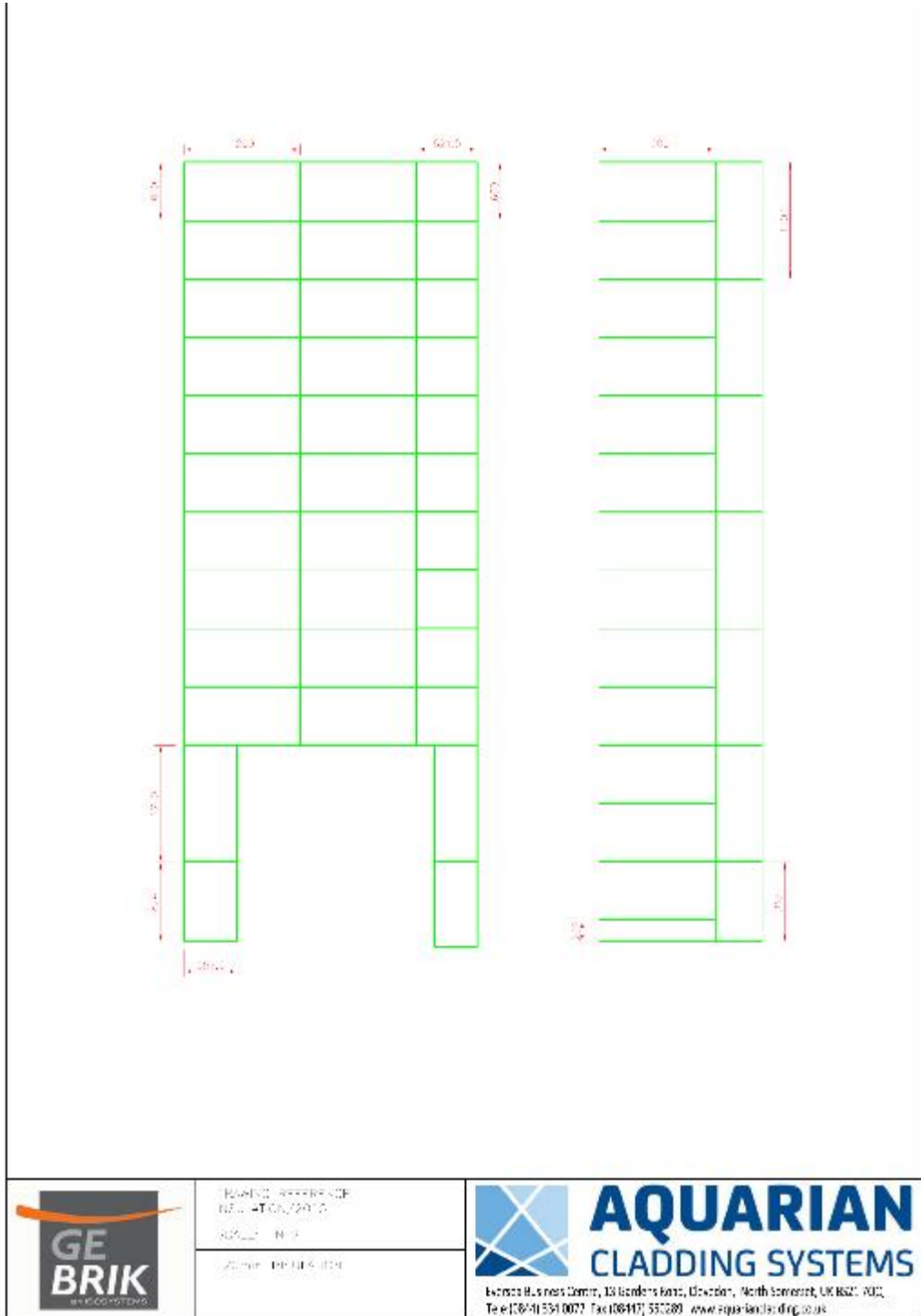


Figure 3. Layout and installation of insulation

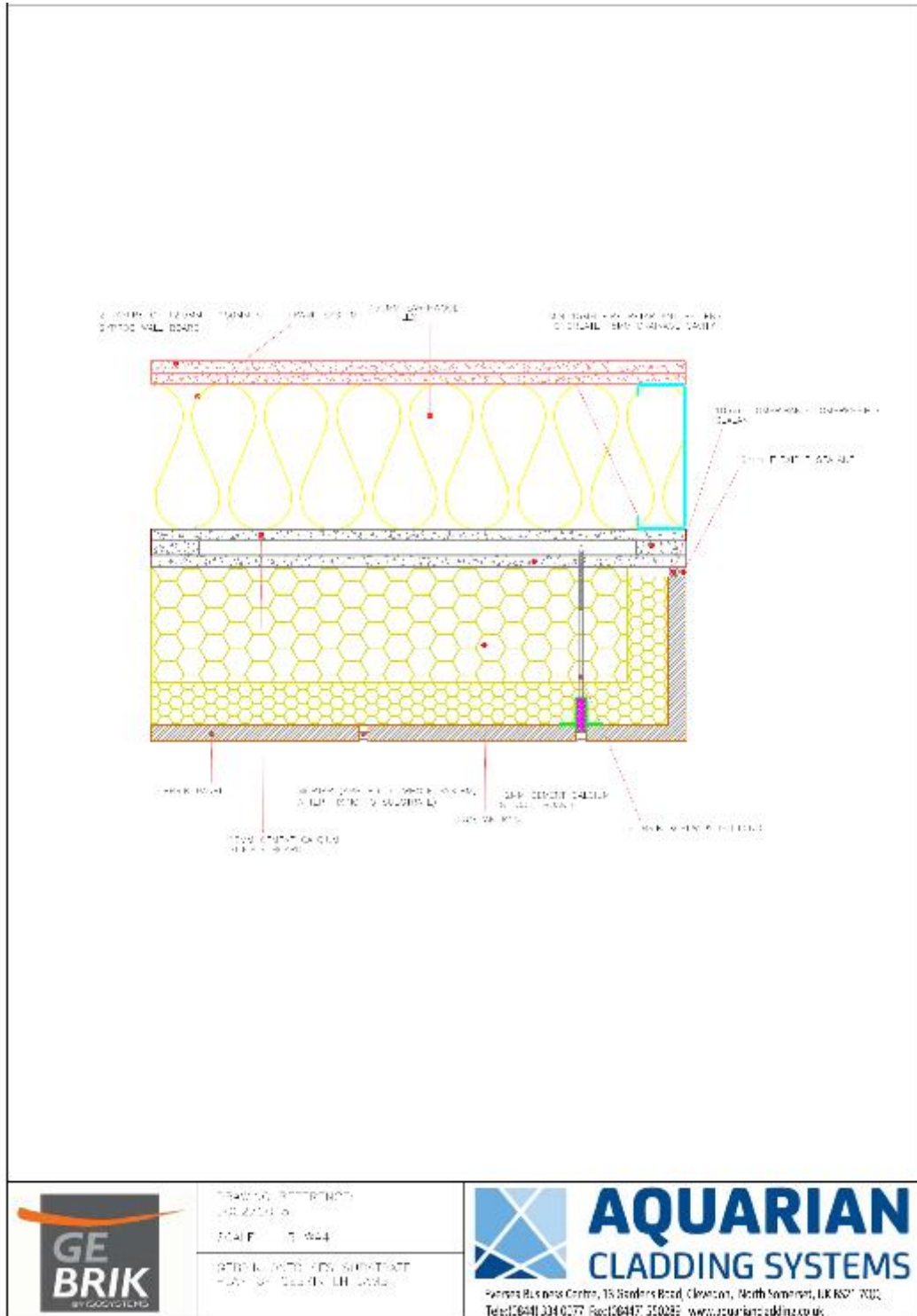


Figure 4. Horizontal section through the system

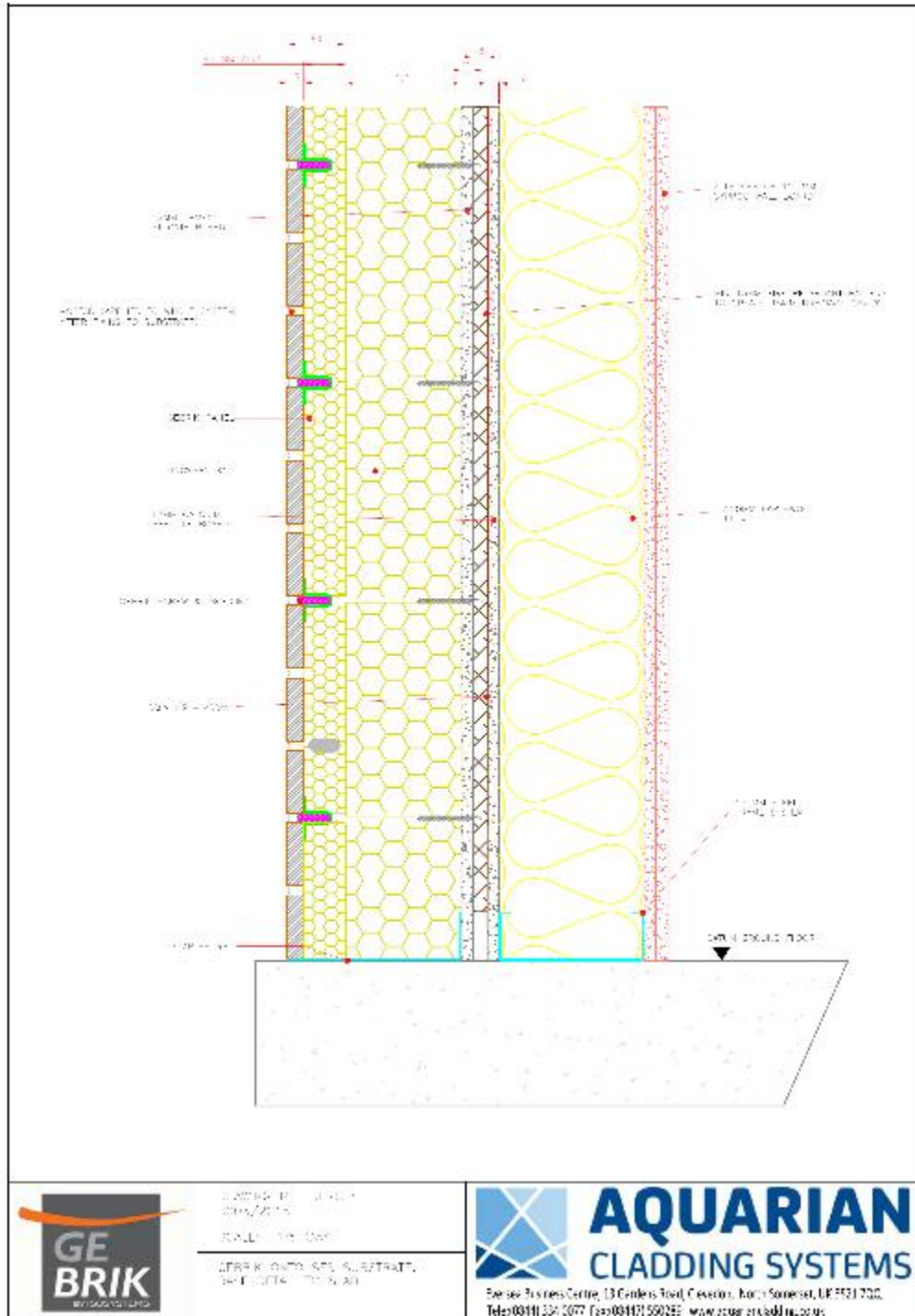


Figure 5. vertical section through the system

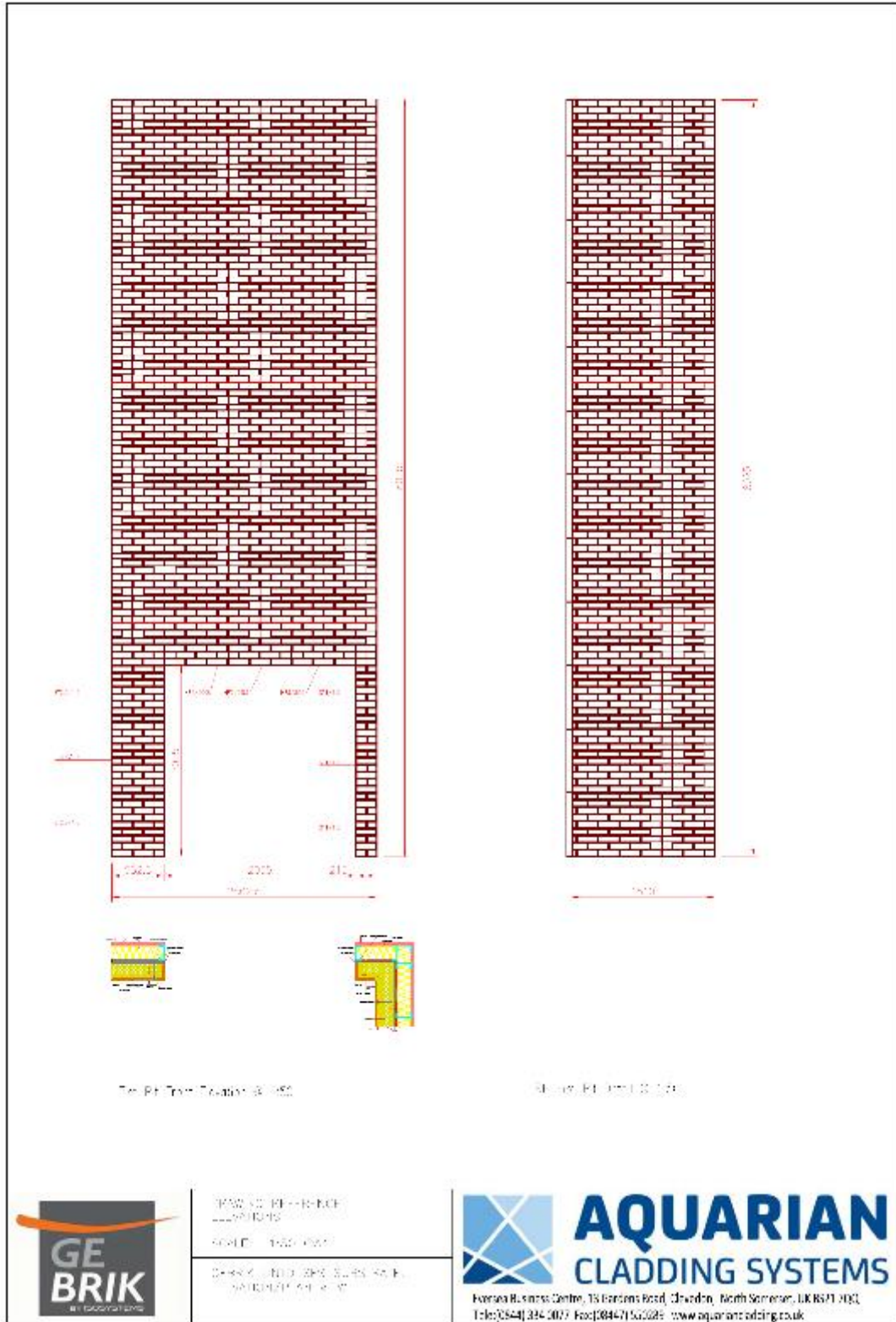


Figure 6. Front view of the rainscreen face of the main and wing faces of the system



TRAWL TO REFERENCE
 DRAWINGS
 SCALE: 1:200 (MAIN)
 CHECK INTO THE SUBS FOR
 ANY CHANGES

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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	Isosystems and Aquarian Cladding Systems	Test report P100838-1000 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		>15 minutes	Compliant
	Insulation layer		>15 minutes	Compliant
	Cavity behind insulation		>15 minutes	Compliant
	Cement particle board		>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.

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

Time (min:secs)	Location of material
8:15	Brick detached from hearth surround
8:56	Brick detached from 0.5 m above top of hearth – main wall
11:58	Bricks detached from 1m above hearth- main wall
17:57	Bricks detached from 1.5m above hearth- main wall
19:27	Bricks detached from 2.5m above hearth- main wall
21:18	Bricks detached from 3m above hearth- main wall
23:25	Bricks detached from 3.5m above hearth- main wall
24:49	Bricks detached from 2.5m above hearth- wing wall
26:00	Bricks detached from 4.0m above hearth- main wall
35:21	Bricks detached from 4.0m above hearth- wing wall

A pool fire developed in front of the system starting at 12:35 (min:sec). This fire increased in size at 21:40(min:sec)

The insulation continued to burn where the brick slips had fallen away until end of test.



Classification and field of application

4.4 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.

4.5 Classification

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

4.6 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.



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.