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# BRE Global Classification Report

## Alumasc Classification of fire performance in accordance with BR 135: 2013 Annex A

**Prepared for:** Alumasc Exterior Building Products LTD

**Date:** 5th February 2019

**Report Number:** P112107-1001 Issue: 1


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

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

**Product name:** Silkolitt Supa External Wall Insulation System

**Classification report No.:** P112107-1001

**Issue number:** 1

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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 A 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 product was installed on to wall number 2 of the BRE Global cladding test facility.

This apparatus is representative of the face of a building and consists of a masonry structure with a vertical main test wall and a vertical return wall at a 90º angle to and at one side of the main test wall.

## 2.2 Description of product

Table 1. List of component parts used in the construction of the system

| Item | Description |
|---|---|
| 1 | Alumasc M.R.S Acrylic Stabilizer |
| 2 | Alumasc M.R. Bedding Adhesive |
| 3 | Kingspan K5 insulation (supplied in boards 1200mm×600mm×60mm) |
| 4 | Alumasc M.R. Scrim Adhesive |
| 5 | “L”-shaped white plastic corner bead (50mm×50mm×2535mm-long) |
| 6 | Alumasc Scrim Reinforcement mesh |
| 7 | Alumasc M.R. S4 Polymer Render |
| 8 | Alumasc M.R. ST Primer |
| 9 | Alumasc ST Silkolitt Silicone Render |

### 2.2.1 Installation sequence

Alumasc M.R.S Acrylic Stabiliser (diluted with water 1:1, approximately 8m$^2$/L) was sprayed onto the masonry structure and allowed to dry for approximately one hour.

Alumasc M.R. Bedding Adhesive was applied (approximately 3-4mm-thick) to the rear face of the Kingspan K5 insulation with scratch-combed finish. Insulation boards fixed, long edge horizontal, to the wall using Rawlplug T-fix 115mm-long×8mm-thick expanding hammer fixings with a Ø60mm insulation

disc head. Typically, one fixing used per insulation board at nominal vertical/horizontal centres of: 600mm/600mm (main wall) and 600mm/800mm (wing wall).

Alumasc M.R. Scrim Adhesive was applied to the insulation (approximately 3-5mm-thick) with Alumasc Scrim Reinforcement mesh (strips approximately 1000mm-wide×3000mm-long) worked into the adhesive while still wet. “L”-shaped white plastic corner bead was embedded in the wet scrim adhesive along every edge and secured with plastic Rawlplug FTF Fir Tree Fixings (29mm-long×18mm-wide) at nominal 300mm vertical centres.

The Alumasc Scrim Reinforcement mesh was mechanically fixed, through the finished scrim adhesive layer and into the masonry wall, with 115mm-long×8mm-thick expanding hammer fixings, with a Ø60mm insulation disc head, at nominal 450mm vertical/horizontal centres. Adjacent to the combustion chamber the fixing centres were reduced to 300mm. Stainless-steel fire anchors (110mm-long×8mm-thick) were also fixed through the scrim adhesive at 1000mm vertical/horizontal centres. Alumasc Scrim Reinforcement was cut to nominal 100mm×100mm patches and applied with M.R Scrim Adhesive over all fixing heads.

Alumasc M.R. S4 Polymer Render was applied over the face of the system at a maximum thickness of 8mm. The finish was made smooth and left to cure for a minimum of 2 days.

Alumasc M.R. ST Primer was applied to the render using roller applicator and left to dry for approximately one hour.

Alumasc ST Silkolitt Silicone Render was applied to the primer using a trowel and “rolling” technique at approximately 1.5mm-thick. Return walls into the combustion chamber were left at the primer stage of construction.

The finished system was allowed to cure for a minimum of 28 days.

## 2.3 Installation of specimen

All test materials were supplied and installed by the Test Sponsor. BRE Global 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

Figure 1. Cladding system prior to test.

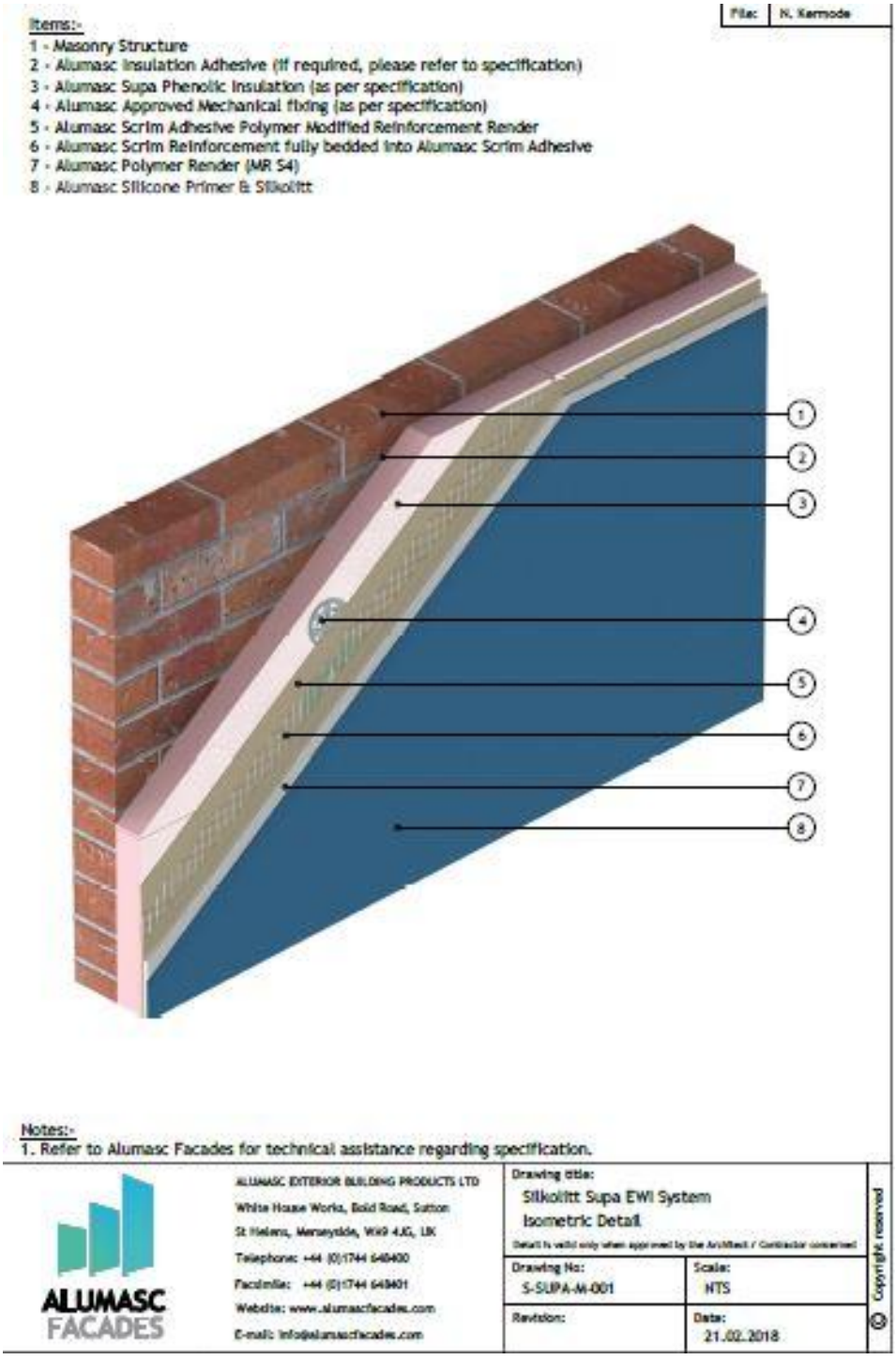


Figure 2. Isometric drawing (supplied by Test Sponsor).

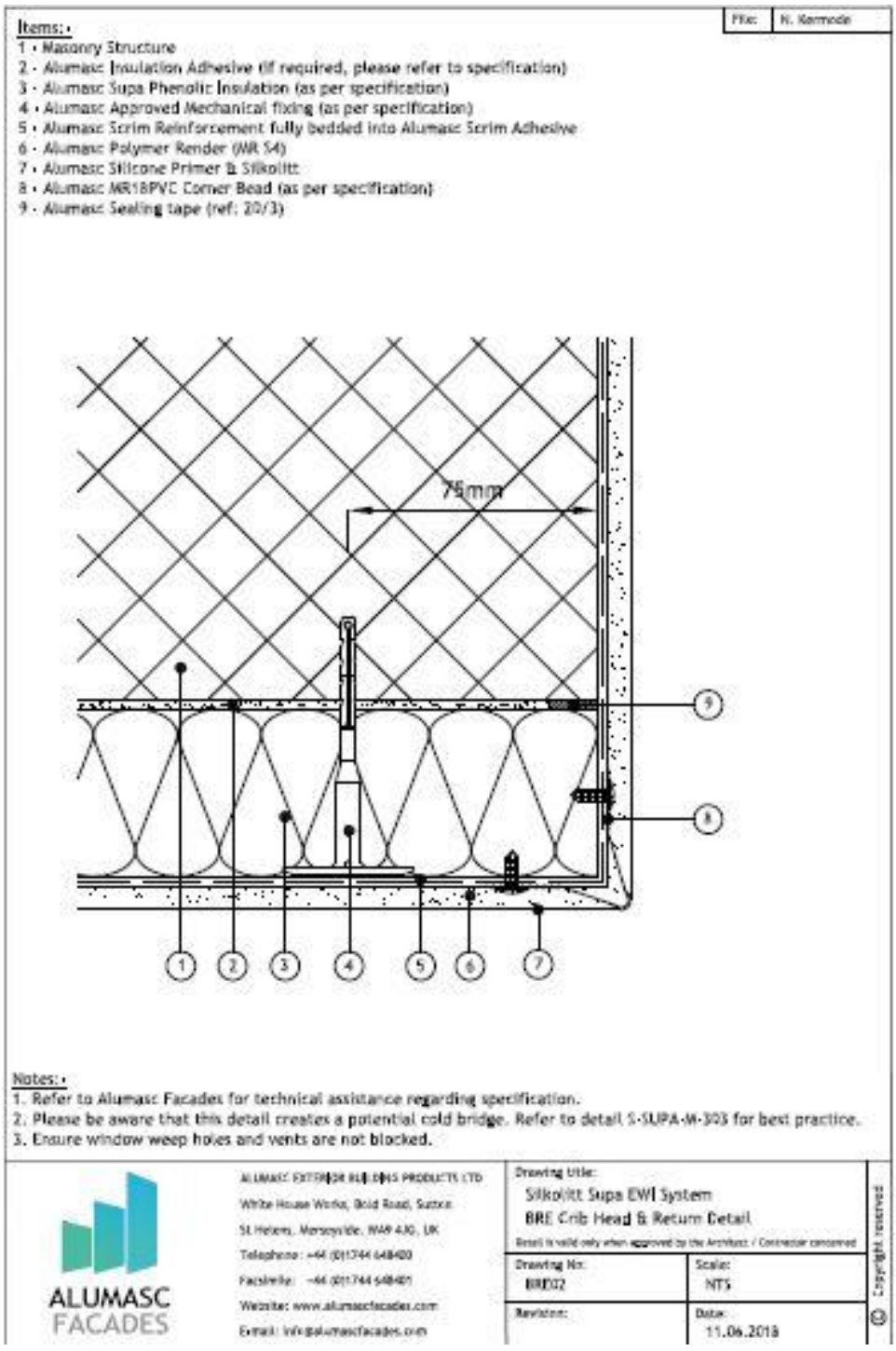


Figure 3. Cross-section: combustion chamber head detail (supplied by Test Sponsor).

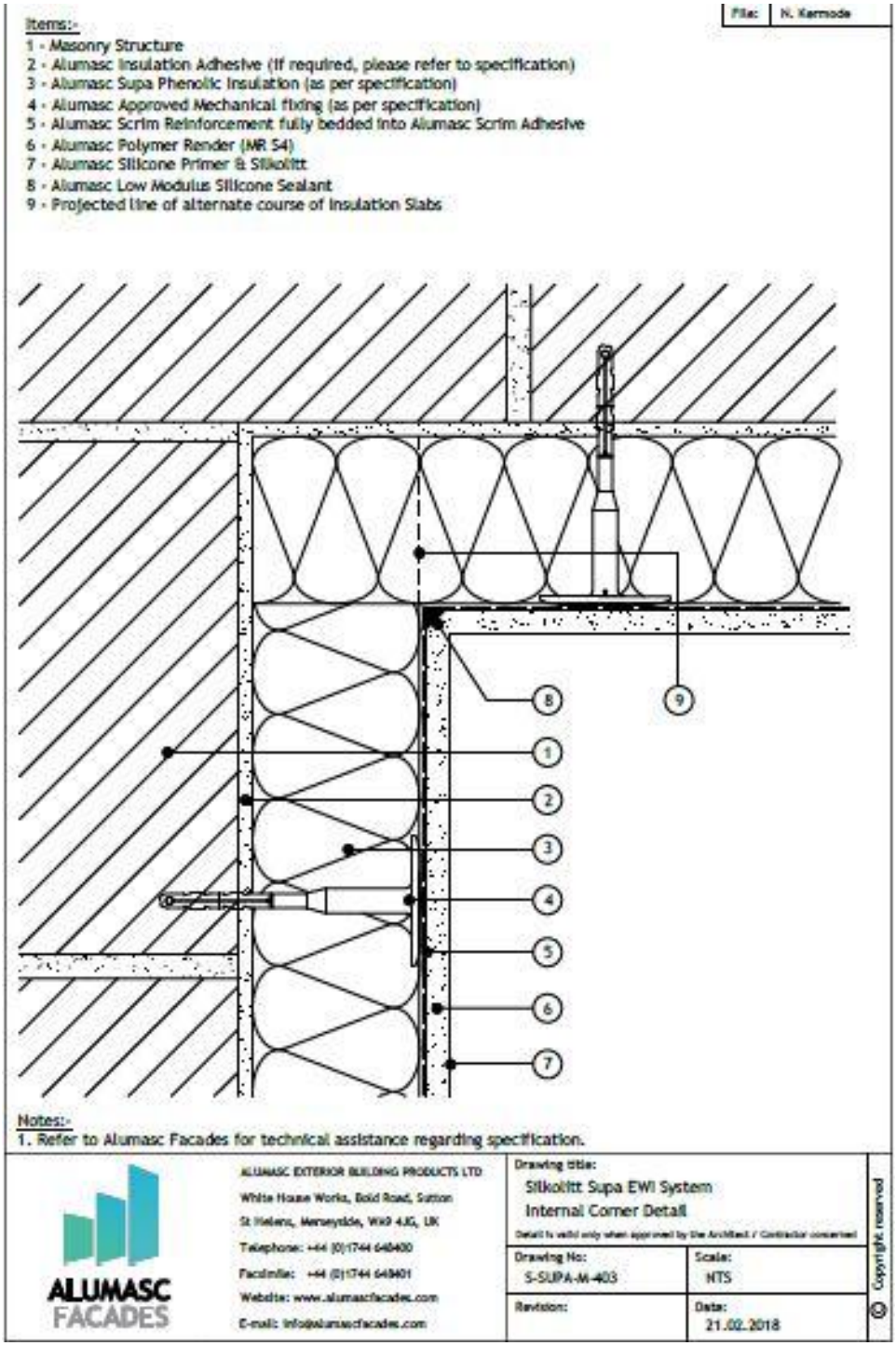


Figure 4. Cross-section: corner detail (supplied by Test Sponsor).

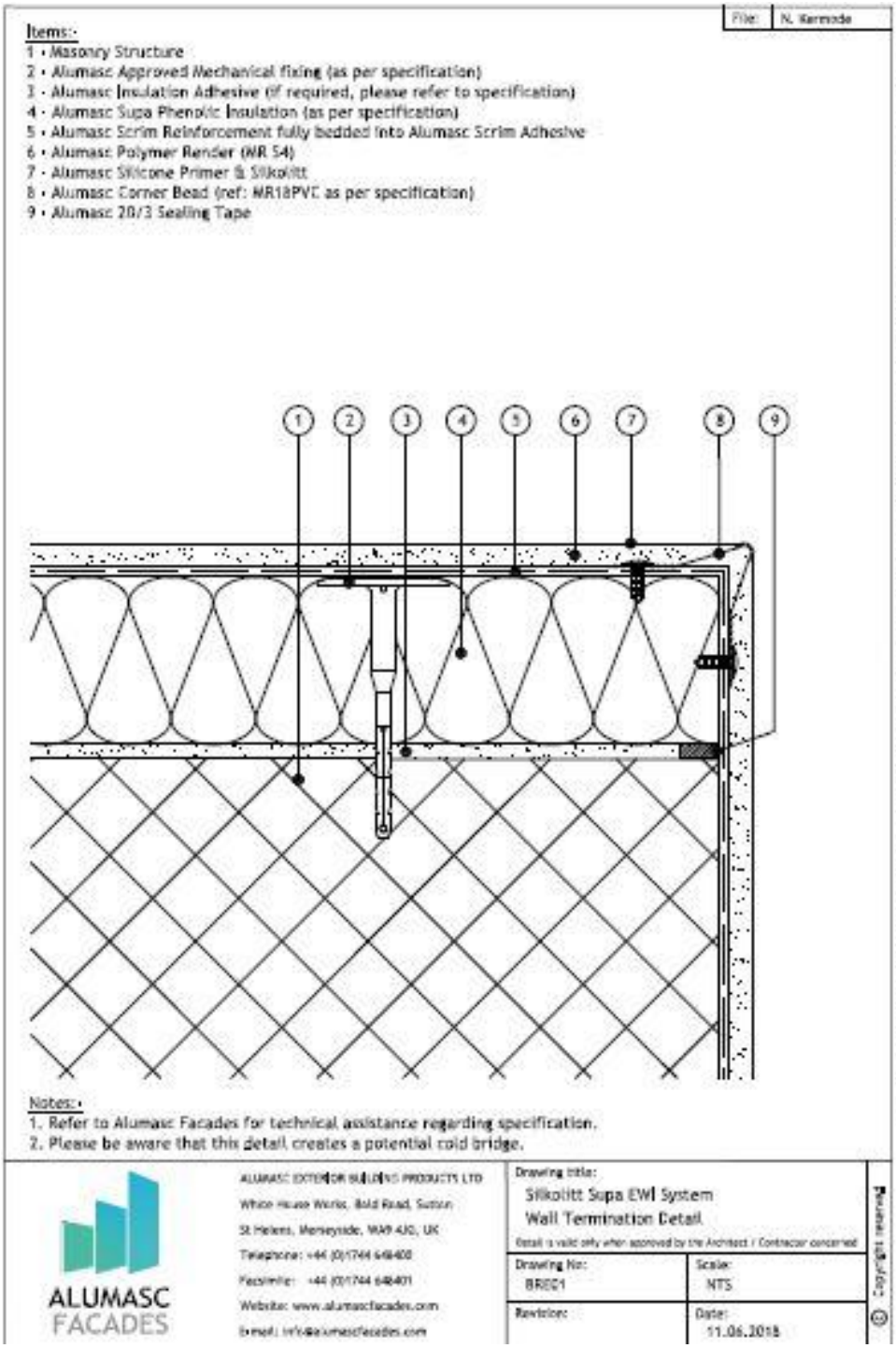


Figure 5. Cross-section: wall edge detail (supplied by Test Sponsor).

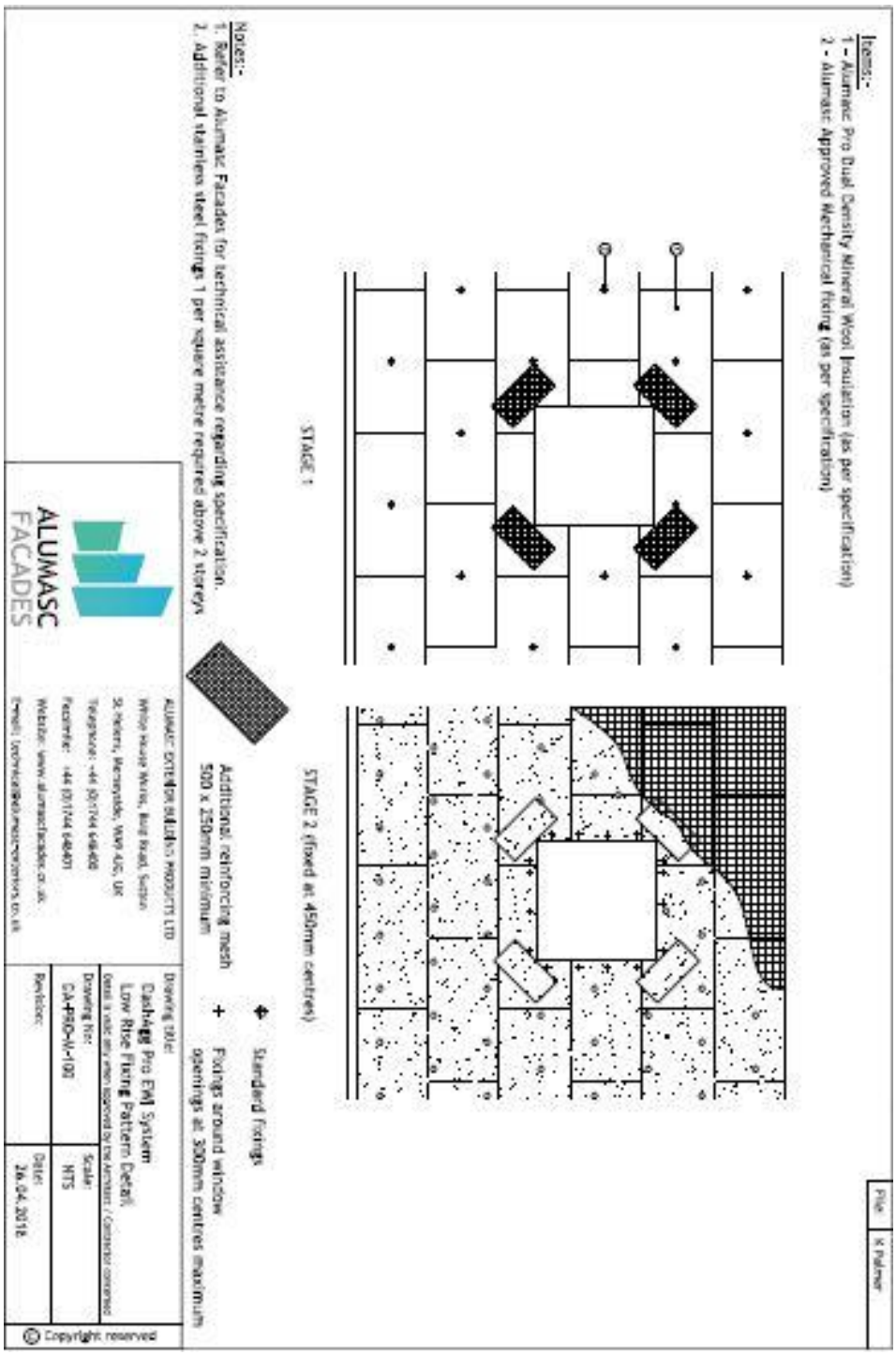


Figure 6. Reinforcement mesh and insulation fixing detail (supplied by Test Sponsor).

# 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 | Alumasc Exterior Building Products Ltd. | P112107-1000 | BS 8414-1:2015 + A1:2017 |

## 4.2 Test results

| **Test method** | **Parameter** | **No. tests** | **Results** | |
|---|---|---|---|---|
| | | | **Fire spread test result time, $t_s$ (min)** | **Compliance with parameters in Annex A BR135:2013** |
| BS 8414-1:2015 + A1:2017 | External fire spread | 1 | >15 minutes | Compliant |
| | Internal fire spread | | >15 minutes | Compliant |

## 4.3 Mechanical performance

There was no pool fire or flaming debris.

Render detached from the main wall, in line with the combustion chamber opening, up to a height of 5200mm above the combustion chamber opening.

Ongoing system combustion continued in small localised areas on the main wall until 31minutes 45seconds after ignition.

## 4.4 System damage

### 4.4.1 External Render Layer

**Main Wall** – The render layer detached up to approximately 5200mm above the combustion chamber with a max width of detachment of 1800mm. The render was discoloured to the top of the test specimen.

**Wing Wall** – The render layer was cracked and distorted from 1m below the combustion chamber opening to 3m above. The render was discoloured from ground level to 3m above the combustion chamber opening.

### 4.4.2 Internal Render Layer

The damaged external render was removed to reveal:

**Main Wall** – Internal render detached in an area approximately 1.8m-wide×2m-high directly above the combustion chamber. Remaining render was discoloured to approximately 5m above the combustion chamber opening.

**Wing Wall** – The internal render remained intact and was discoloured up to approximately 2m above the combustion chamber opening. Reinforcement mesh and mechanical fixings were exposed and charred/melted in places.

### 4.4.3 Insulation Layer

**Main Wall** - Insulation was charred in an area tapering from 1.8m-wide, directly above the combustion chamber, to 0.5m-wide 6m above.

**Wing Wall** – Insulation was charred from 0.5m above ground level to 2m above the combustion chamber opening. The maximum width of damage was approximately 1.1m.

# 5 Classification and Field of Application

## 5.1 Reference of classification

This classification has been carried out in accordance with Annex A 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 A 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 classification applies only to the system as tested and detailed in the classification report. The classification report can only cover the details of the system as tested. It cannot state what is not covered. When specifying or checking a system it is important to check that the classification documents cover the end-use application.

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