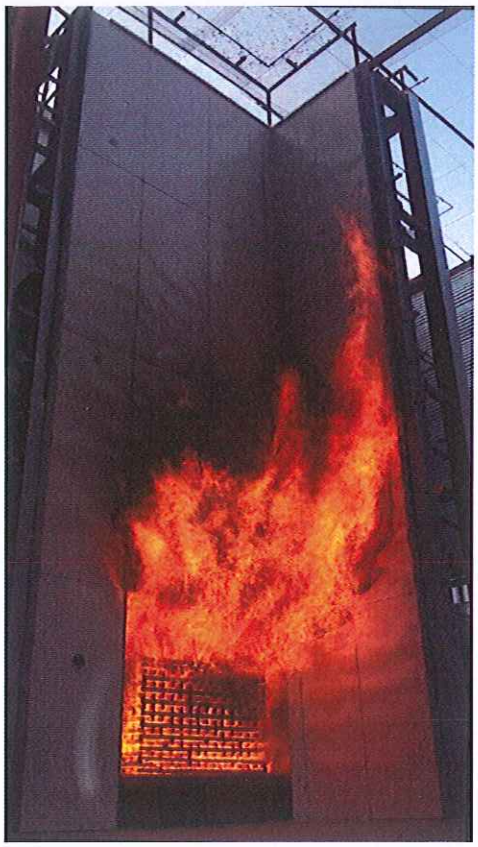
FAÇADE TESTING & ADVISORY SERVICES

Classification Report

As per BR135:2013 Annex A

Client	:	**Valcan Ltd.**
Project	:	**System Development**
Report No.	:	**SR0711 Rev.0**
Date	:	**25 October 2017**
Sample	:	**Vitrabond / A2 with Xtratherm Safe-R Insulation 110mm**



Façade Testing & Advisory Services Division

1 Introduction

This report details the classification of the aluminium composite panel cladding system (described under Section 2 of this report) in accordance with BR135:2013 Annex A, when tested in accordance with BS 8414-1:2015 + A1:2017 at the Al Futtaim Exova (AFE) laboratory in Dubai, at the request of:

Valcan Ltd.,
Unit 7, Robins Drive,
Bridgewater, England.
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2 Test Sample Description

The test specimen comprised of an aluminium composite panel wall cladding (Vitrabond / A2 with Xtratherm Safe-R Insulation 110mm) system fixed onto a masonry block wall.

The perimeter of the cladding system were covered with 3mm thick aluminium sheets and the interface between the cladding system and the combustion chamber were covered with 1.5mm thick steel sheets. The distance of the finished face of the wing wall to the side opening of the combustion chamber was 234mm. See drawings in Appendix A for material and installation details.

Materials used in the system are detailed in the table below:

Component	Description
Bracket	Double bracket: Vitrafix aluminium bracket 140 x 150 x 3mm with 45 x 150 x 3mm washer and polypropylene plastic thermal shim.
	Single bracket: Vitrafix aluminium bracket 140 x 75 x 3mm with 45 x 75 x 3mm washer and polypropylene plastic thermal shim.
Cavity barrier	Horizontal intumescent cavity barrier: Siderise RH25S-90/30, 1200 x 135 x 75mm, density 80kg/m^3.
	Vertical cavity barrier: Siderise RV-90/30, 1200 x 170 x 75mm, density 80kg/m^3.
Insulation	Xtratherm Safe-R Rain screen (SR/RS) 110mm phenolic foam boards, density 45kg/m^3.
Railing	Vitrafix aluminium L-Rail, 60 x 40 x 2mm.
	Vitrafix aluminium T-Rail, 100 x 60 x 2mm.
Panel	4mm thick Vitrabond A2 panel. Top - Aluminium skin , Core - Mineral filled core, Bottom - Aluminium skin
Birds-beak profile	0.9mm thick, aluminium profile.
Ventilation hole & cover	Polished stainless steel vent, 127mm in diameter, provided to cover ventilation hole of 164mm depth.

The brackets were fixed to the masonry with MFRFB-10/80 A4 wall fixings and nylon wall plugs. Polypropylene plastic shims were placed separating the masonry wall and brackets.

Four horizontal intumescent cavity barriers were fixed to the main and wing walls between the vertical cavity barriers, positioning them at the top of the combustion chamber opening, 2358mm above the combustion

chamber, 4716mm above the combustion chamber and 6960mm above the combustion chamber. Five continuous, vertical cavity barriers were provided, three on the main wall and two on the wing wall.

Insulation foam boards were fixed to the masonry wall with steel and plastic pins, in the space between the vertical and horizontal cavity barriers.

The aluminium cladding panels were riveted to the railings, which in turn were fixed to the brackets. The first horizontal joint was at 2350mm from the top of combustion chamber.

See the figures below for details.

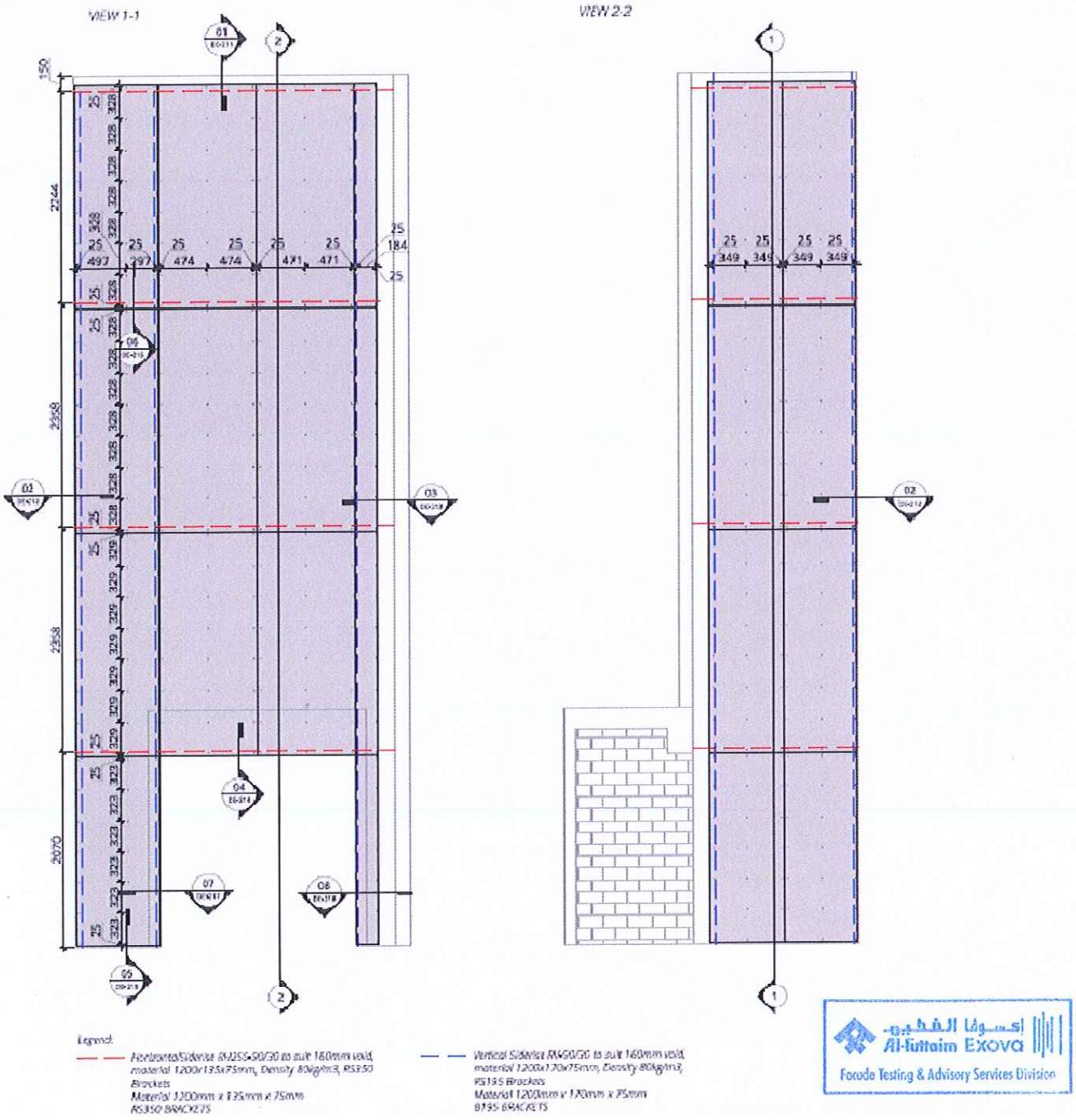

Figure 1: Tested sample elevation showing cladding panel and cavity barrier layouts

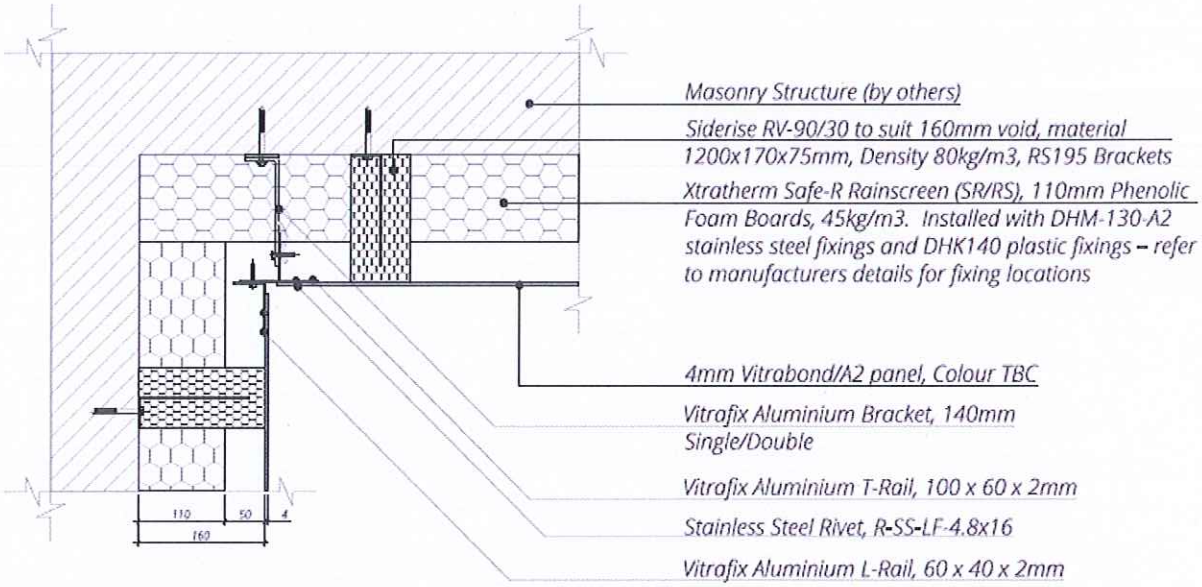

Figure 2: Corner detail of tested system

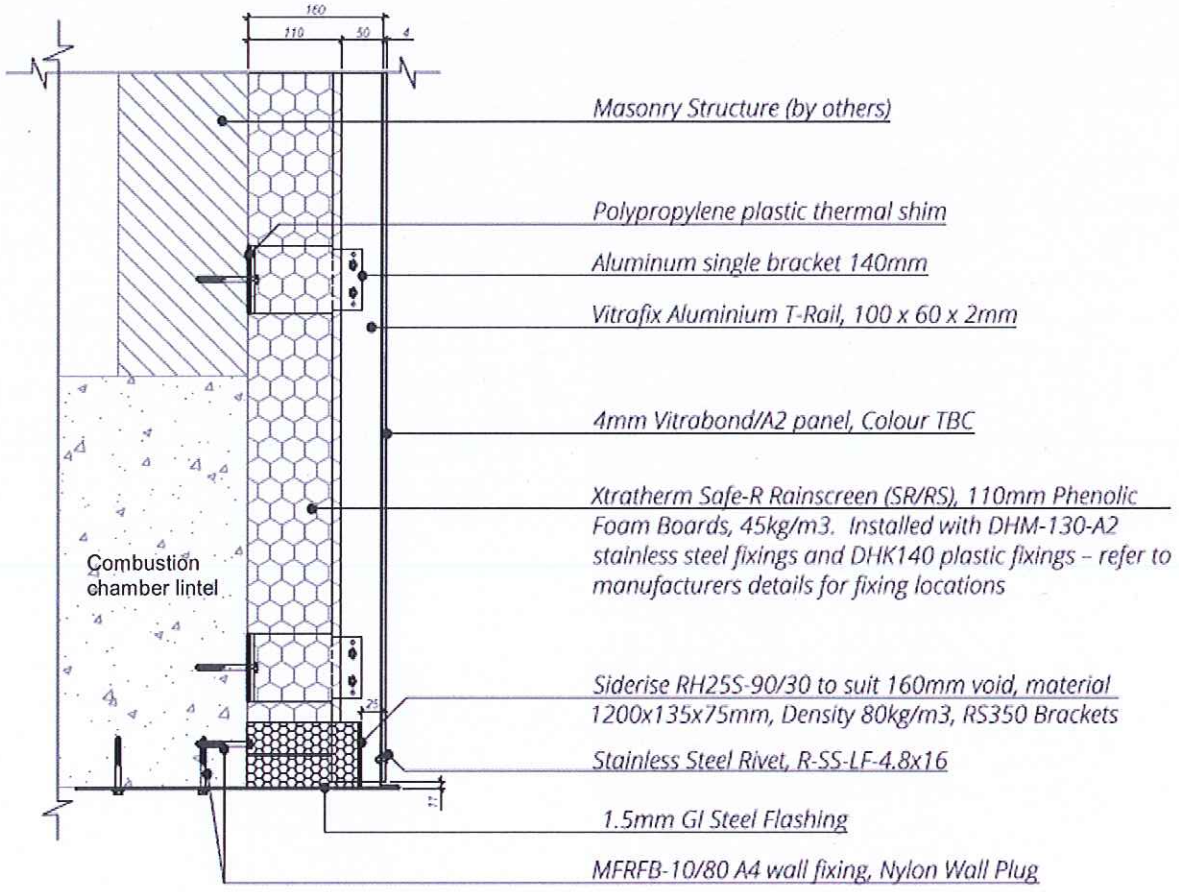

Figure 3: Detail of the system above the combustion chamber

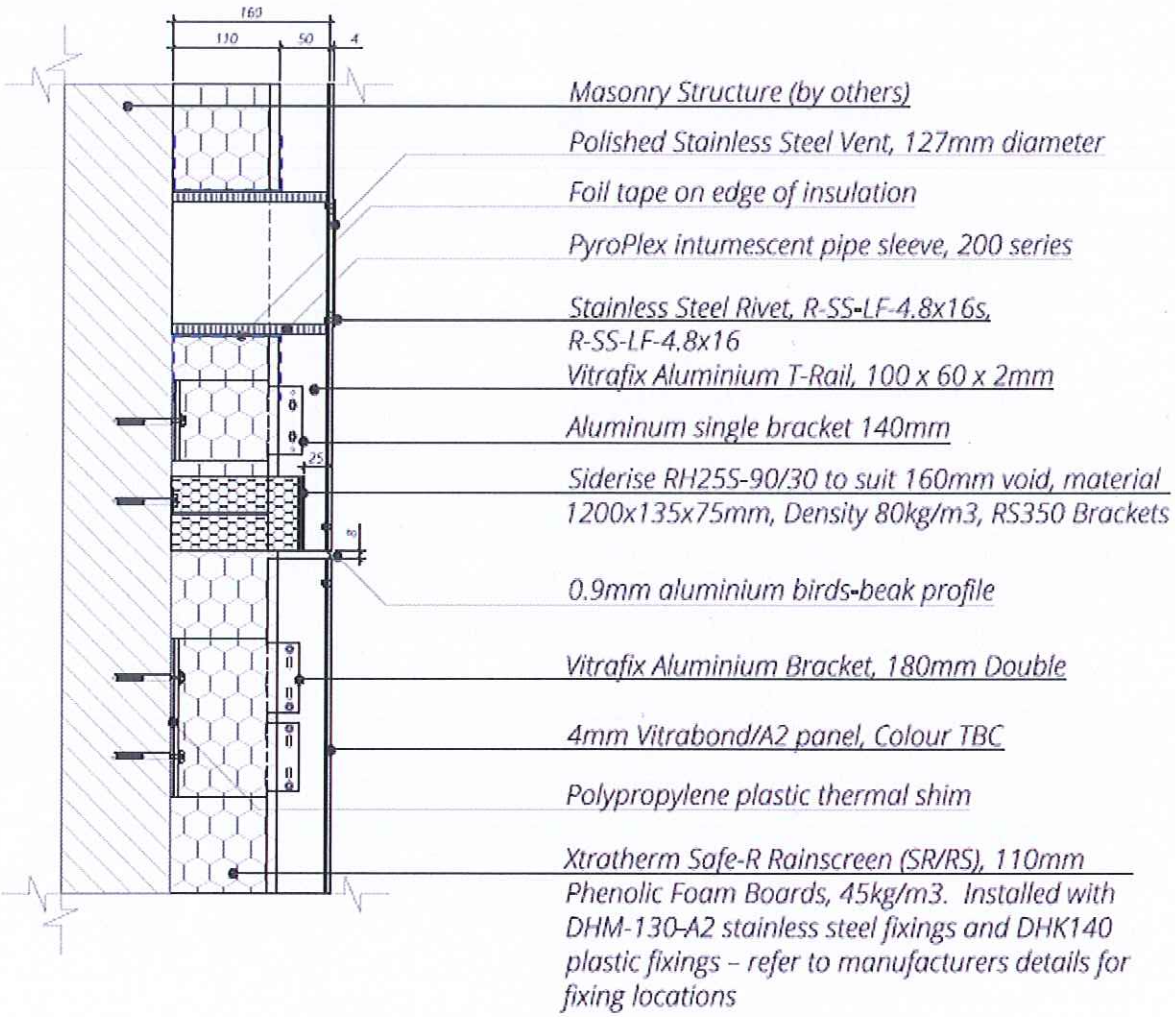

Figure 4: Detail of the system showing intumescent cavity barrier and ventilation

3 Test Results

Parameters	Temperature Data / Observations
T_s, start temperature	27.67°C
t_s, start time	123 seconds after ignition of the crib (thermocouple 6)
Maximum allowable temperature at Level 2 within 900 seconds from t_s.	627.67°C
Peak temperature & time at Level 2 (external)	552.02°C at 906 seconds from t_s (thermocouple 14)
Peak temperature & time at Level 2 (internal cavity)	229.27°C at 1014 seconds from t_s (thermocouple 19)
Peak temperature & time at Level 2 (internal insulation)	69.46°C at 2274 seconds from t_s (thermocouple 28)

Level 1: 2500mm above the top of the combustion chamber opening on the test apparatus.

Level 2: 5000mm above the top of the combustion chamber opening on the test apparatus.

Start Temperature, T_s: Mean temperature of the thermocouples at Level 1, five minutes prior to ignition of the heat source.

Start Time, t_s: Time when the temperature recorded by any external thermocouple at Level 1 equals or exceeds 200°C above T_s and remains above this value for at least 30 seconds.

Parameters	Fire Spread Time, t_s	Result
External fire spread	>15 minutes	**Compliant**
Internal fire spread (cavity)	>15 minutes	**Compliant**
Internal fire spread (insulation)	>15 minutes	**Compliant**
Mechanical performance	Approximately 2% of aluminium panels and approximately 30% of insulation were completely consumed by fire. There was no collapse of panels or any parts of the system. Test was terminated after 30 minutes from ignition and observation were continued for another 30 minutes.	

4 Classification

The system described in this classification report has been tested in accordance BS 8414-1:2015 + A1:2017 and complied with the performance criteria detailed in BR135:2013 Annex A.

This classification report should be read in conjunction with the test report AFE laboratory test report DLR1399 Rev.0, which fully details all aspects of the system and tests carried out.

Al-futtaim Exova
Facade Testing & Advisory Services Division

Table 1 Document Status

Rev No.	Author	Approved for Issue		
		Name	Signature	Date
0	Akhil Chacko	Manoj Kumar Laboratory Manager		25.10.2017

Al-futtaim EXOVA
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