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North Yorkshire  
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Technical Report No: R240089

Issue: 3

Date: 19-Dec-24



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**Client's Name & Address:**

Aperture  
Richmond Road  
Trafford Park  
Manchester  
M17 1RE

**Referenced Quote No:**

Q2403014

**Identity of Test Item:**

Aperture Weathering System

**Date of Receipt of Test Item:**

14-May-24

**Specimen Number(s):**

S24040040

**Applied Methods:**

A reaction to fire test in accordance with;  
DD CEN/TS 1187:2012

Test Methods for External Fire Exposure to Roofs

Clause 7: Test 4 – Method with Two Stages Incorporating Burning Brands, Wind and Supplementary Radiant Heat

**Test Completion Date:**

27-Jun-24

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The applied method(s), test result(s) and the uncertainties (if requested) with confidence probability are given on the following pages which are part of this technical report.

**Technical Report Date:**

19-Dec-24

**Prepared by:**

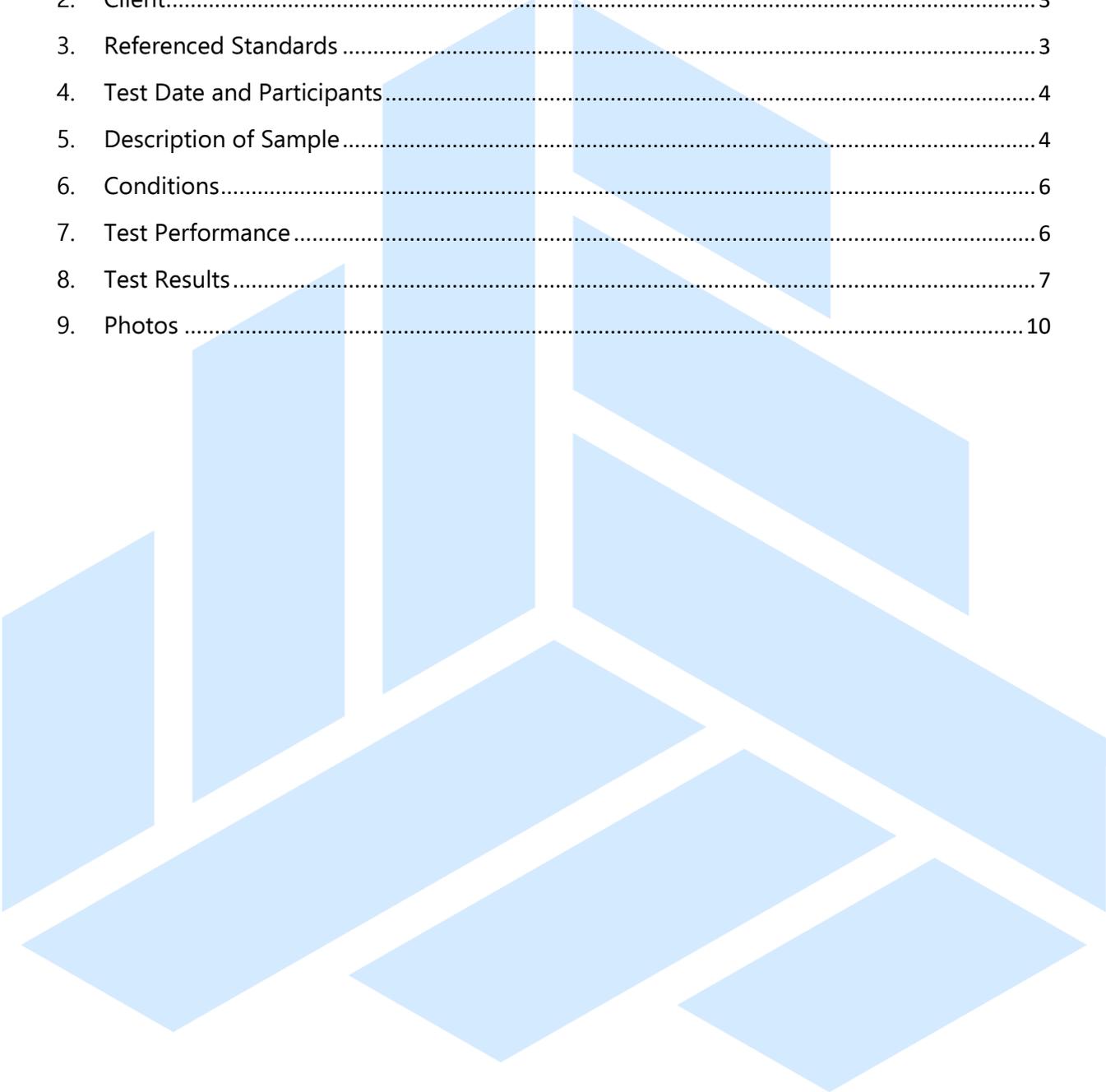
Phil Dean  
Testing Technician

**Reviewed by:**

Chris Davey  
General Manager

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**1. Introduction**

This report<sup>1</sup> presents the results of the reaction to fire tests, in accordance with test standard DD CEN/TS 1187:2012 Test method 4, which were performed 27-Jun-24 by Attain RTC Limited at the address; Hangar One, Leeds East Airport, Church Fenton, Tadcaster, LS24 9SE.

Test samples of Aperture Riser Build Up were supplied by Aperture. The samples were delivered to Attain RTC on 14-May-24.

*Note: Test method only is performed under accreditation.*

<sup>1</sup> *This report replaces report no: R240089 Issue:2 date:1-Aug-24:*

*Client name amended from "Aperture Ltd." to "Aperture" in Client's Name & Address and 2.Client.*

*Name of manufacturer amended from "Aperture Ltd." to "Aperture" in 5.1 General Arrangement of Panels and in 5.1.1 Final Coating (test face).*

*"Galvanised steel with coating" was amended to "Galvanised steel with plastisol coating" as Generic type in 5.1.2 Layer 2.*

*"Coated metal carrier membrane was amended to "Plastisol coated metal" as Product reference in 5.1.2 Layer 2.*

*"Corrivo" was amended to "ArcelorMittal" as Manufacturer in 5.1.2 Layer 2.*

*"Dansdeck Prime Roof Board" was amended to "Densdeck Prime Roof Board" as Product reference in 5.1.3 Layer 3.*

**2. Client**

Aperture  
 Richmond Road  
 Trafford Park  
 Manchester  
 M17 1RE

**3. Referenced Standards**

Tests have been carried out by taking the standards indicated below into consideration:

DD CEN/TS 1187:2012: Test Methods for External Fire Exposure to Roofs

Clause 7: Test 4 – Method with Two Stages Incorporating Burning Brands, Wind and Supplementary Radiant Heat

BS EN 13238:2010: Reaction to Fire Tests for Building Products – Conditioning Procedures and General Rules for Selection of Substrates

BS EN 13501-1:2007+A1:2009<sup>2</sup>: Fire Classification of Construction Products and Building Elements

Part 1: Classification Using Data from Reaction to Fire Tests

BS EN 13501-5:2005+A1:2009<sup>2</sup>: Fire Classification of Construction Products and Building Elements

Part 5: Classification Using Data from External Fire Exposure to Roofs Tests

<sup>2</sup> *Note: Standards have been withdrawn/superseded. DD CEN/TS 1187:2012 states normative reference documents are indispensable for the application and for dated reference, only the edition cited applies.'*

**4. Test Date and Participants**

Test was carried out on 27-Jul-24 by the following Attain RTC staff:

Lead Technician: Dave Stevenson  
 Support Technician: Tim Merrick  
 Supervised by: Phil Dean

**5. Description of Sample**

**5.1 General Arrangement of Panels**

Generic description of product type.

Name of the sample: Aperture Weather System\*  
 Name of manufacturer: Aperture\*  
 Thickness of sample: 156mm  
 Weight per unit area: 30kg/m<sup>2</sup>\*

**5.1.1 Final Coating (test face)**

Generic type: Liquid applied waterproofing system\*  
 Product reference: Aperture Weathering System\*  
 Name of manufacturer: Aperture\*  
 Application Method: Aperture weathering system applied at 0.5l/m<sup>2</sup>, Aperture regular glass fibre mat, Aperture weathering system applied at a rate of 1l/m<sup>2</sup> and Aperture\*  
 Colour Reference: Slate Gray\*  
 Joint Details: Seamless\*

**5.1.2 Layer 2**

Generic type: Galvanised steel with plastisol coating\*  
 Product reference: Plastisol coated metal\*  
 Manufacturer: ArcelorMittal  
 Layer depth: 0.7mm\*  
 Nominal Mass/Unit Area: 5.5kg/m<sup>2</sup>  
 Colour Reference: Goosewing grey  
 Joint Details: Butt joint

**5.1.3 Layer 3**

Generic type: Gypsum board with embedded glass mat facers\*  
 Product reference: Densdeck Prime Roof Board\*  
 Manufacturer: Georgia Pacific LLC  
 Thickness (Single Layer) - Minimum: 15.9mm\*  
 Thickness (Single Layer) - Maximum: 15.9mm\*  
 Nominal Mass/Unit Area: 2.5kg/m<sup>2</sup>  
 Application Method: Mechanically fastened\*  
 Colour Reference: White with grey faces\*  
 Joint Details: Butt joint\*

**5.1.4 Layer 4**

Generic type: Mineral wool insulation\*  
 Product reference: Rockwool Hardrock Multi-Fix insulation Boards\*  
 Manufacturer: Rockwool\*  
 Thickness (Single Layer) - Minimum: 105mm\*  
 Thickness (Single Layer) - Maximum: 105mm\*  
 Nominal Mass/Unit Area: 20.16kg/m<sup>2</sup>  
 Application Method: Mechanically fastened\*  
 Colour Reference: Brown\*  
 Joint Details: Butt joint\*

**5.1.5 Layer 5**

Generic type: Vapour Control Layer\*  
 Product reference: Alutrix 600\*  
 Manufacturer: Carlilse Construction Material GMBH\*  
 Thickness (Single Layer) - Minimum: 0.6mm\*  
 Thickness (Single Layer) - Maximum: 0.6mm\*  
 Nominal Mass/Unit Area: 700g/m<sup>2</sup>  
 Application Method: Self-adhesive with FG35 Primer\*  
 Colour Reference: Grey\*  
 Joint Details: 50mm overlap\*

**5.1.6 Layer 6**

Generic type: Gypsum board with embedded glass mat facers\*  
 Product reference: DensDeck Prime Roof Board\*  
 Manufacturer: Georgia Pacific LLC\*  
 Thickness (Multiple Layers): 15.9mm double layered\*  
 Nominal Mass/Unit Area: 2.5kg/m<sup>2</sup>  
 Application Method: Mechanically fastened\*  
 Colour Reference: White with grey faces\*  
 Joint Details: Butt joint\*

\* Information provided by the test sponsor

**5.2 Sample(s)/Specimen(s) Information**

**5.2.1 Sample Selection**

The laboratory was not involved in the sample selection. Test results apply to the sample as received.

**5.2.2 Sample Conditioning**

The specimens were received on the 14-May-24 prior to testing the prepared specimens were conditioned as described in BS EN 13238:2010.

**5.2.3 Mounting**

Carried out by Attain RTC staff.

**6. Conditions**

Laboratory Temperature (°C): Start of Stage 1: 21.6  
 Start of Stage 2 (Test 1): 22.0  
 Start of Stage 2 (Test 2): 22.7  
 Start of Stage 2 (Test 3): 22.6

**7. Test Performance**

**7.1 Test Equipment**

**Table 1: Test Equipment**

Instrument	Manufacturer	Type	Serial Number
CEN/TS 1187 Test 4 Roofing test	FTT	N/A	N/A
Thermometer	RS PRO1160	Thermohygrometer & Barometer	220700910 (Attain ref – 00120)
Stopwatch	Extech	STW515	(Attain ref – 00080)
Calibrated Tape Measure	Stanley	N/A	S/ 2019508/385 (Attain ref – 00025)

**7.2 Scope of test**

In accordance with DD CEN/TS 1187 test method 4, this test is to determine the performance of roofs to external fire exposure. Test method 4 is in two stages.

-  **Stage 1** is preliminary ignition test with a burning brand only, one test is performed, with the duration of flaming, spread of flame and flaming penetration of sample recorded.
-  **Stage 2** incorporates burning brands, wind and supplementary radiant heat. The fire penetration and the production of flaming, non-flaming droplets or debris falling from the underside of the roof or from the exposed surface is recorded along with the structural integrity of the specimen throughout the test.

**7.3 Orientation of Specimens**

The specimens were tested in the horizontal position.

**7.4 Deviations to Standard**

There were no deviations from the test standard.

## 8. Test Results

The test results relate only to the specimens received from the sponsor.

### 8.1 Stage 1

The observations noted in Table 2 below were recorded as required by 'Stage 1 Preliminary Ignition Test with Burning Brands'.

**Table 2: Stage 1 Observations**

Time (min:sec)	Observations on Sample No: S24040040 -1
00:00	Test start (burning brand applied)
01:00	Test end (burning brand removed)
Post test	Surface scorch mark measuring 70mm in length. The specimen surface did not remain ignited after the burning brand was removed.

The results noted in Table 3 below were recorded as required by 'Stage 1 Preliminary Ignition Test with Burning Brands'.

**Table 3: Stage 1 Results**

Sample No: S24040040	-1
Has fire penetration occurred?	No
If yes, time of occurrence (m:ss)	0:00
Duration of flaming after brand flame (m:ss)	0:00
Maximum flame spread distance (mm)	0

### 8.2 Stage 2

The observations noted in Table 4, 5 and 6 below were recorded as required by 'Stage 2 Penetration Test with Burning Brands, Wind and Supplementary Radiant Heat'.

**Table 4: Stage 2 Observations**

Time (min:sec)	Observations on Sample No: S24040040-2
00:00	Test start
00:43	Smoke from specimen
05:00	Burning brand applied
05:14	Flaming on specimen surface starts
06:00	Removal of burning brand
07:20	Maximum height of flames from specimen
13:24	Flames from specimen starting to reduce
25:10	Flames from specimen cease
34:00	Peeling of specimen surface
Post test	At the end of 60 minute testing time, no penetration of the specimen was observed. The specimen sustained burning through to layer 2 but no further. As seen in the post test photos.

**Table 5: Stage 2 Observations**

<b>Time (min:sec)</b>	<b>Observations on Sample No: S24040040-3</b>
00:00	Test start
00:25	Smoke from specimen
05:00	Burning brand applied
05:06	Flaming on specimen surface starts
06:00	Removal of burning brand
06:40	Maximum height of flames from specimen
09:52	Flames from specimen starting to reduce
20:10	Flames from specimen cease
34:00	Peeling of specimen surface
Post test	At the end of 60 minute testing time, no penetration of the specimen was observed. The specimen sustained burning through to layer 2 but no further. As seen in the post test photos.

**Table 6: Stage 2 Observations**

<b>Time (min:sec)</b>	<b>Observations on Sample No: S24040040-4</b>
00:00	Test start
00:28	Smoke from specimen
05:00	Burning brand applied
05:03	Flaming on specimen surface starts
05:24	Peeling of specimen surface
06:00	Removal of burning brand
06:33	Maximum height of flames from specimen
08:30	Flames from specimen starting to reduce
14:24	Flames from specimen cease
Post test	At the end of 60 minute testing time, no penetration of the specimen was observed. The specimen sustained burning through to layer 2 but no further. As seen in the post test photos.

The results noted in Table 7 below were recorded as required by 'Stage 2 Penetration Test with Burning Brands, Wind and Supplementary Radiant Heat'.

**Table 7: Stage 2 Results**

<b>Sample No: S24040040</b>	<b>-2</b>	<b>-3</b>	<b>-4</b>
Has fire penetration occurred?	No	No	No
If yes, time of occurrence (mm:ss)	0:00	0:00	0:00
Has melting occurred?	No	No	No
If yes, time of occurrence (mm:ss)	0:00	0:00	0:00
Have flaming/non-flaming droplets occurred?	No	No	No
If yes, time of occurrence (mm:ss)	0:00	0:00	0:00
Has mechanical failure occurred?	No	No	No
If yes, time of occurrence (mm:ss)	0:00	0:00	0:00
Have holes developed?	No	No	No
If yes, time of occurrence (mm:ss)	0:00	0:00	0:00

## 9. Photos

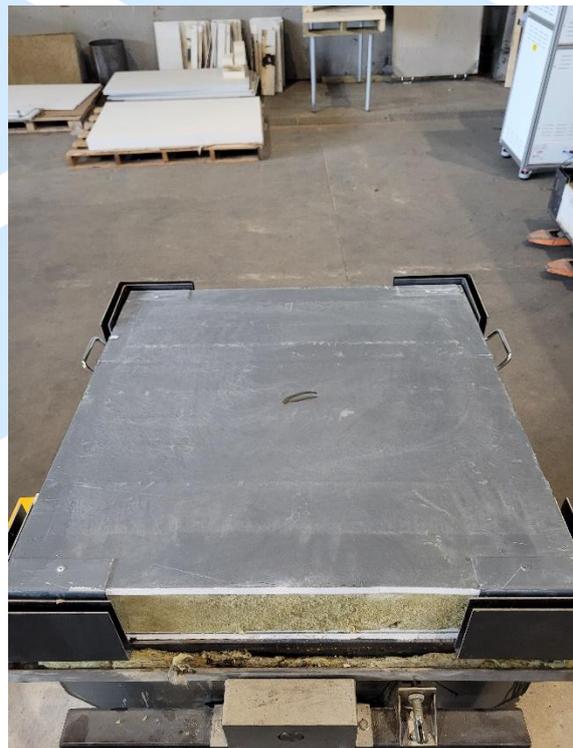
### 9.1 Stage 1 S24040040 -1

Pretest picture of specimen.



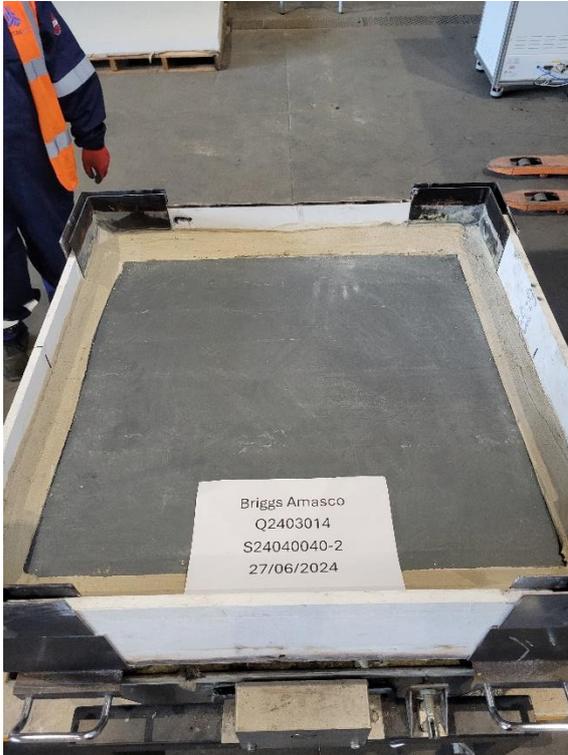
### 9.2 Stage 1 S24040040-1

Post test pictures of specimen.



**9.3 Stage 2 S24040040 -2**

Pretest picture of specimen.



**9.4 Stage 2 S24040040-2**

Smoke produced from specimen.



Post flames damage to specimen.



**9.5 Stage 2 S24040040-2**

Peeling of specimen surface.



Post test surface damage.



**9.6 Stage 2 S24040040-2**

Post test surface damage inspection.



Post test surface damage inspection.



**9.7 Stage 2 S24040040-2**

Post test layer inspection.



Post test layer inspection.



**9.8 Stage 2 S24040040-3**

Pretest picture of specimen.



**9.9 Stage 2 S24040040 -3**

Before the application of the burning brand.



After the application of the burning brand.



**9.10 Stage 2 S24040040-3**

Flames reducing mid test.



Flaming ceased on specimen surface.



**9.11 Stage 2 S24040040-3**

Post test surface damage inspection.



Post surface damage inspection.



**9.12 Stage 2 S24040040-3**

Post test layer inspection.



Post test layer inspection.



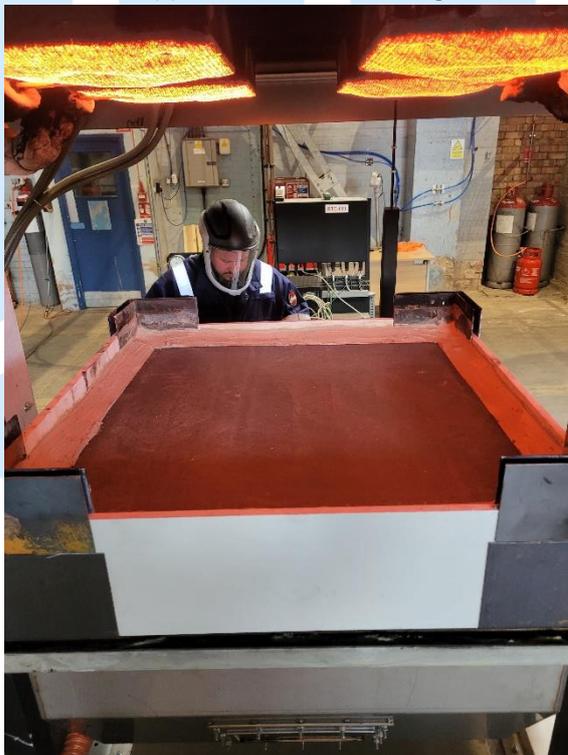
**9.13 Stage 2 S24040040-4**

Pretest picture of specimen.



**9.14 Stage 2 S24040040 -4**

Before the application of the burning brand.



Application of the burning brand.



**9.15 Stage 2 S24040040-4**

Flames reducing mid test.



Flaming ceased on specimen surface



**9.16 Stage 2 S24040040 -4**

Post test surface damage inspection.



Post surface damage inspection.



**9.17 Stage 2 S24040040-4**

Post test layer inspection.



Post test layer inspection.

