

Formica Ltd

Coast Road
North Shields
Tyne and Wear NE29 8RE
Tel: 0191 259 3000 Fax: 0191 258 2719
e-mail: customerservicesuk@formica.com
website: www.formica.co.uk



Agrément Certificate
10/4747
Product Sheet 1

EXTERIOR LAMINATE BOARDS

VIVIX BY FORMICA GROUP – FORMICA EXTERIOR LAMINATE PANELS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Vivix⁽²⁾ by Formica Group – Formica⁽²⁾ Exterior Laminate Panels, compact, decorative, high-pressure laminate (HPL) panels for exterior use as defined in BS EN 438-6 : 2016 as a protective/decorative façade in back-ventilated and drained cavity rainscreen cladding systems, over the external walls of new or existing buildings. The panels are suitable for fixing onto timber or aluminium support frames.

(1) Hereinafter referred to as 'Certificate'.

(2) Vivix and Formica are registered trademarks.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Mechanical resistance and stability — the products can be incorporated in a cladding system suitably designed to withstand the wind loads normally experienced in the UK (see section 6).

Behaviour in relation to fire — the products are to Class 0 as defined in the national Building Regulations (see section 7).

Weathertightness — the products will adequately screen the substrate wall from rain (see section 8).

Durability — the products will have an ultimate service life in excess of 30 years (see section 10).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Simon Wroe
Head of Approvals — Engineering

Claire Curtis-Thomas
Chief Executive

Date of Third issue: 30 September 2016

Originally certified on 29 April 2010

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

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tel: 01923 665300
fax: 01923 665301
clientservices@bba.star.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Vivix by Formica Group – Formica Exterior Laminate Panels, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: A1	Loading
Comment:	The products are acceptable for use as set out in section 6 of this Certificate.
Requirement: B4(1)	External fire spread
Comment:	The products are judged to meet the Class 0 requirements. See sections 7.1 to 7.4 and 7.6 to 7.9 of this Certificate.
Requirement: C2(b)(c)	Resistance to moisture
Comment:	The products will resist the passage of rainwater to the supporting structure. See section 8 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The products are acceptable. See sections 10.1 and 10.2 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2)	Durability, workmanship and fitness of materials
Comment:	The products can contribute to a construction satisfying this Regulation. See sections 9, 10.1 and 10.2 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1(a)(b)	Structure
Comment:	The products are acceptable, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard: 2.6	Spread to neighbouring buildings
Comment:	The products can contribute to satisfying this Standard, with reference to clause 2.6.4 ⁽¹⁾⁽²⁾ . See section 7 of this Certificate.
Standard: 2.7	Spread on external walls
Comment:	The products can contribute to satisfying this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The products will resist the passage of rainwater to the supporting structure, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.3 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation: 12	Building standards applicable to conversions
Comment:	All comments given for the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	The products are acceptable. See sections 10.1 and 10.2 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The products will resist the passage of rainwater to the supporting structure. See section 8 of this Certificate.
Regulation: 30	Stability
Comment:	The products are acceptable for use as set out in section 6 of this Certificate.
Regulation: 36(a)(b)	External fire spread
Comment:	The products are judged to meet the Class 0 requirements. See sections 7.1 to 7.4 and 7.6 to 7.9 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 Delivery and site handling (3.3) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of Vivix by Formica Group – Formica Exterior Laminate Panels, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 6 Superstructure (excluding roofs), Chapter 6.9 Curtain walling and cladding, Clause 6.9.18 Rainscreen cladding.*

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard BS EN 438-7 : 2005. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Other approvals

The panels are the subject of Avis Technique 2/08-1282 issued by the Centre Scientifique du Bâtiment (CSTB) in France, and Technical Approvals Certificate DTI-plus 491-p by the Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc) in Spain.

Technical Specification

1 Description

1.1 Vivix by Formica Group – Formica Exterior Laminate Panels are high-pressure laminate (HPL) panels for exterior use as defined in BS EN 438-6 : 2016, available in two grades, EDF (Fire retardant) and EDS (Standard). The panels are available in up to 80 colours.

1.2 The nominal characteristics of the panels are given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Thickness ⁽¹⁾ (mm)	6, 8 and 10
Panel size ⁽²⁾ (mm)	3050 x 1300
	3050 x 1320
	3660 x 1525
Mean dry density* (kg·m ⁻³)	1350
Flexural strength*	Pass
Flexural modulus*	Pass

(1) Tolerance on thickness: 6 mm panel ±0.4 mm, 8 mm panel ±0.5 mm, 10 mm panel ±0.6 mm.

(2) Tolerance on size: -0 mm/+10 mm. Other panel dimensions are also available.

1.3 The support frame and its fixing to the substrate are outside the scope of this Certificate.

2 Manufacture

2.1 Layers of cellulose fibres permeated with thermo-stable resins are heated and pressed under high temperatures and pressures to form a compact laminate. Both the upper and lower surfaces incorporate a UV-protective film.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Formica Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate Q05896).

3 Delivery and site handling

3.1 The panels are delivered to site wrapped in polythene, fully supported and banded on wooden pallets. Each pallet carries a label bearing product details such as type, size, quantity, identification code, manufacturing code and colour.

3.2 The panels should be stored flat and level, clear of the ground and under cover to prevent distortion.

3.3 When handling panels, care should be taken to avoid damage to the surface or edges. Panels should be lifted, rather than slid, across the sheets. Protective clothing should be worn and all Health and Safety regulations observed.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Vivix by Formica Group – Formica Exterior Laminate Panels.

Design Considerations

4 Use

Vivix by Formica Group – Formica Exterior Laminate Panels are satisfactory for use as a protective/decorative façade in back-ventilated and drained cavity rainscreen cladding systems, on external walls of new or existing buildings, and for fixing onto timber or aluminium support frames.

5 Practicability of installation

The products are designed to be installed by cladding contractors using equipment and techniques commonly used for the installation of conventional cladding materials.

6 Mechanical resistance and stability

Wind loading

6.1 The panels have adequate strength and can be incorporated in to an external cladding system suitably designed to resist the wind loads normally experienced in the UK.

6.2 The wall and support frame to which the cladding is to be fixed must be structurally sound and constructed in accordance with the relevant national Building Regulations and Standards.

6.3 The supporting wall must be able to take the full wind load, as well as any racking loads, on its own. No contribution from the cladding system may be assumed in this regard.

6.4 Wind loads should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

6.5 When calculating wind loads at corners of the buildings, higher pressure coefficients should be used as recommended in the appropriate Standards.

6.6 The sub-frame and its attachment to the substrate wall should be such as to ensure adequate pull-out capacity for the calculated wind loads. The cladding support members should be designed as to limit their mid-span deflections to $L/200$ and cantilever deflections to $L/150$.

6.7 The fixings to be used for securing the panel to the support frame should have adequate resistance to pull-out from the support frame. The pull-out value, taking into account appropriate safety factors, should be determined in accordance with BS 5427-1 : 1996.

6.8 Rivets (see Figure 1) must be located at least 20 mm from the panel edge. The maximum allowable spacing of the rivets should be determined using the graphs in Figures 2 and 3 as appropriate. For fasteners other than those specified, the Certificate holder should be consulted.

Figure 1 Rivet details

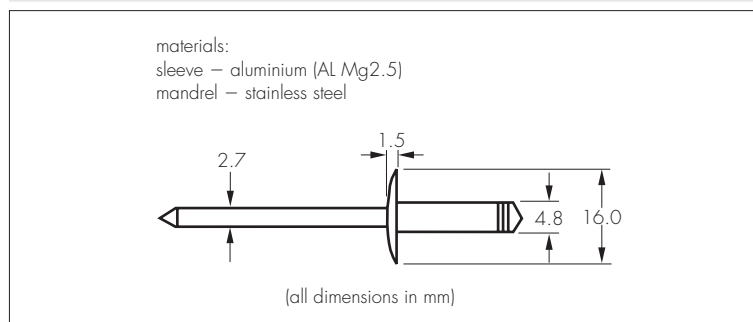


Figure 2 Maximum fixing centres (four-course fixing)

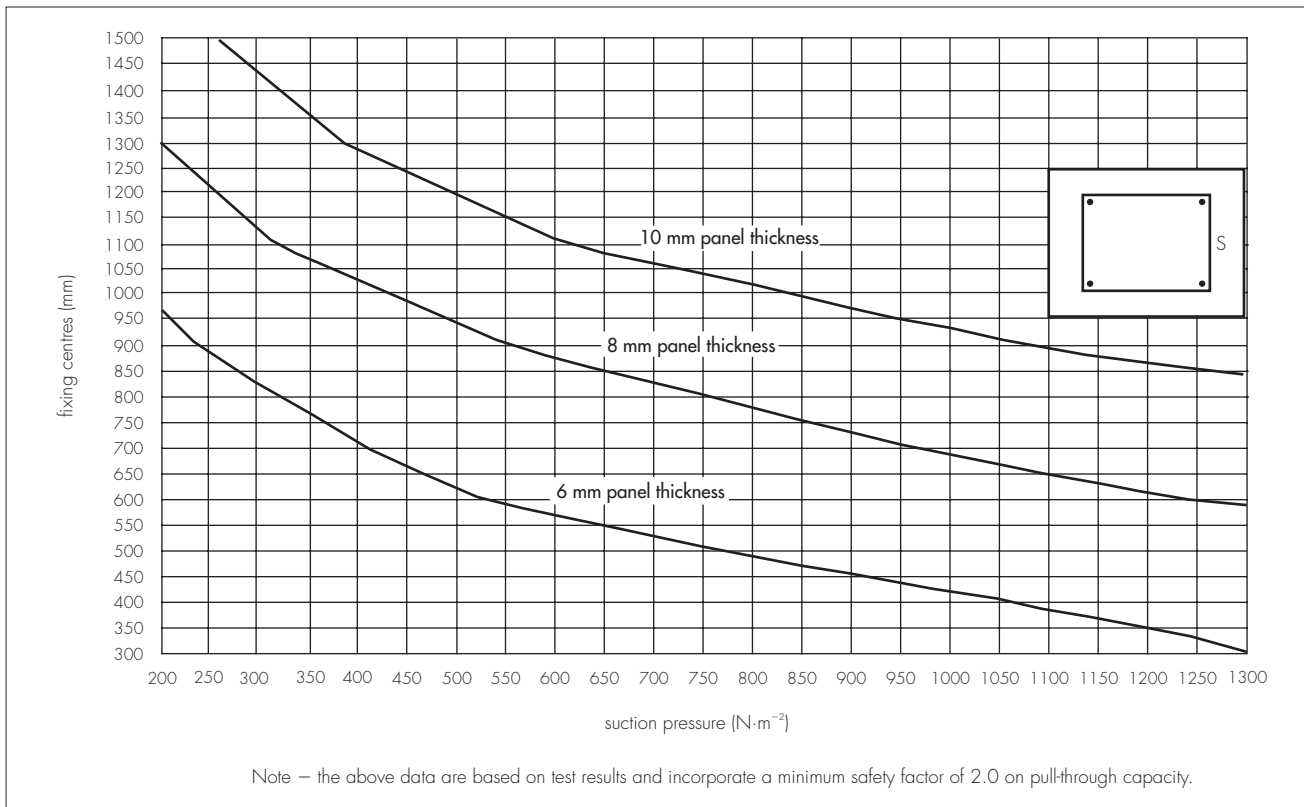
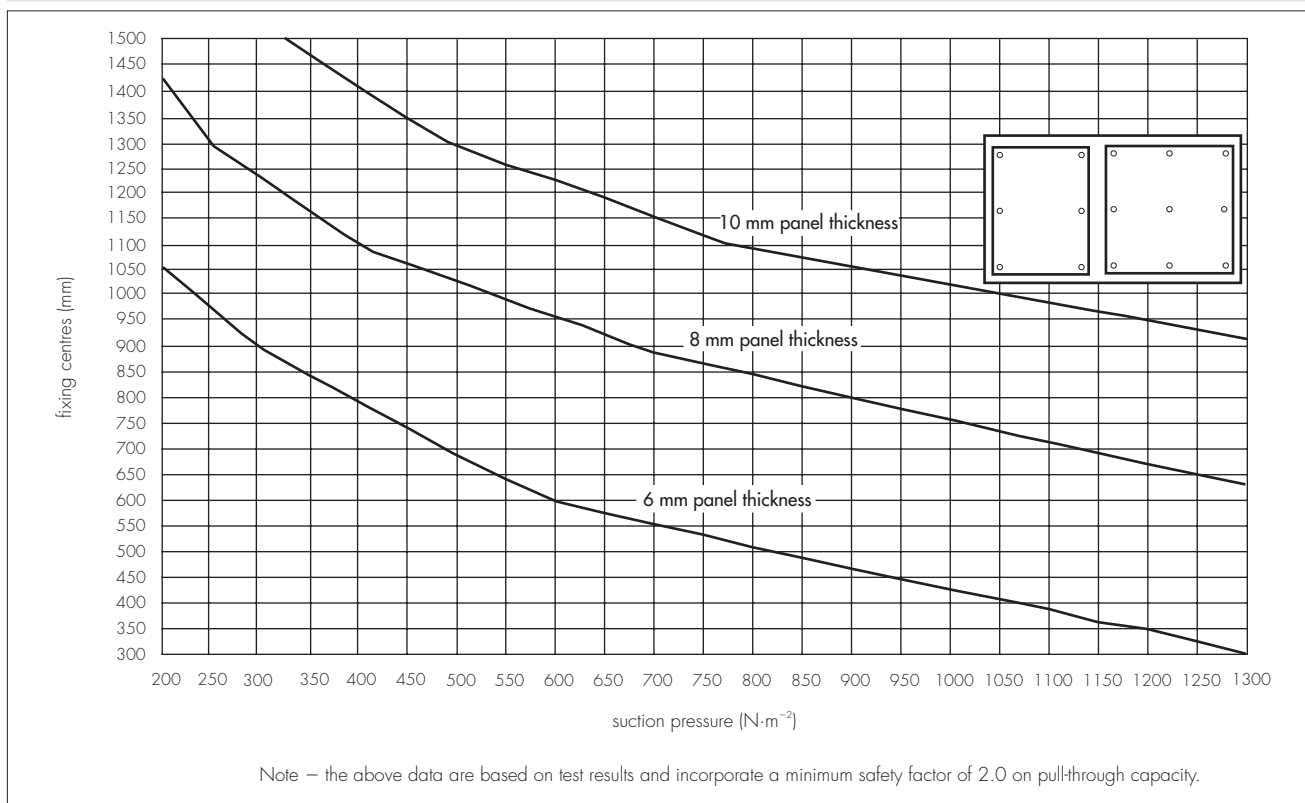


Figure 3 Maximum fixing centres (general fixing)



6.9 For design purposes, the mechanical properties of the panel may be assumed as those given in Table 2.

Table 2 Mechanical properties

Mechanical property (unit)	Value
Density (kg·m ⁻³)	1350
Flexural strength (N·mm ⁻²)	80
Flexural modulus (N·mm ⁻³)	9000

6.10 The design of the installation should be checked by a suitably-experienced engineer.

6.11 Providing the support spacing does not exceed 600 mm, the products will have adequate impact resistance and may be used in categories II, III and IV as defined in ETAG 034 : 2012, Part 1, Table 4.

7 Behaviour in relation to fire



7.1 The reaction to fire classification for the external surface of the panels in accordance with BS EN 13501-1 : 2007 or as defined in the national Building Regulations is shown in Table 3.

Table 3 Panel fire classifications

Panel	Fire classification
EDF	Class 0 or 'low risk' B-s1, d0
EDS	D-s2, d0

7.2 The fire classifications apply to the full range of thicknesses covered by this Certificate.

Systems with EDF panels with a B-s1, d0 or Class 0/'low risk' surface fire classification

7.3 For houses in Scotland, and for all buildings in England and Wales and Northern Ireland, the panels are suitable for use on, or at any distance from, the boundary.

7.4 The panels are restricted for use in buildings up to 18 metres in height.



7.5 For flats and maisonettes and non-domestic buildings in Scotland, the panels are suitable only for use more than 1 metre from the boundary.

Systems with EDS panels with a D-s2, d0 surface fire classification



7.6 The panels are only suitable for use more than 1 metre from the boundary and are restricted for use in buildings up to 18 metres in height.

Systems with EDF/EDS panels

7.7 The panels are not classified as 'non-combustible'; therefore, calculations for unprotected areas may apply, dependent on the fire resistance characteristics of the wall.

7.8 For resistance to fire, the performance of a wall incorporating the panels can only be determined by tests from a suitably-accredited laboratory, and is not covered by this Certificate.

7.9 To limit the risk of fire spread between floors in buildings subject to the national Building Regulations, fire barriers must be incorporated in the cavity behind the panels as required under these Regulations, but should not block essential ventilation pathways. Guidance on fire barriers can be found in BRE Report BR 135 : 2013 *Fire performance of external thermal insulation for walls of multistorey buildings*.

8 Weathertightness



8.1 When tested in accordance with BS EN 438-2 : 2005, the panels had a mean water absorption value of less than 2% and a Class 5 rating.

8.2 For effective removal of moisture from the cavity, a minimum ventilation area of 10000 mm² per metre run of cladding should be provided. The ventilation openings should be suitably protected or baffled to prevent the ingress of birds, vermin and rain.

8.3 The ventilation pathway behind the cladding must not be allowed to become blocked, nor the insulation dislodged, where it may be vulnerable to wetting.

8.4 Providing joints are not wider than 10 mm, the amount of water entering the cavity will be small. Any water collecting in the cavity owing to rain or condensation will be removed by drainage and ventilation. To prevent damage from wind-driven rain, the substrate wall or the insulation behind the cladding should be suitably protected.

8.5 The air space between the back of the cladding panels and the supporting wall or insulation should be as wide as possible allowing for normal building tolerances. Guidance on recommended cavity widths is given in *NHBC Standards*, Chapter 6.9.

9 Maintenance



9.1 The cladding should be inspected annually to ensure that rainwater goods are complete and in good order, and that the cladding panels are in place and secure.

9.2 The products are generally self-cleaning: dirt does not adhere to the surface and rain will wash away any remaining dust. However, in the case of excessive soiling, the surface may be cleaned with hot/warm water and household detergent mixture, applied with a suitable cleaning pad or sponge. Alternatively, the panels can be

pressure-washed with warm or cold water and mild detergents. For more difficult chemical soiling, eg graffiti, the Certificate holder's advice should be sought.

9.3 Damaged panels should be replaced as soon as is practicable, following the Certificate holder's instructions and observing all necessary Health and Safety precautions.

10 Durability



10.1 The durability and service life of the products will depend upon the building location, the immediate environment and the intended use of the building.

10.2 Providing regular maintenance is carried out as described in section 9.1 and in accordance with the Certificate holder's instructions, the products will have an ultimate service life in excess of 30 years.

10.3 Any colour change will be slight and uniform on any one elevation and the products will have a decorative life of at least 10 years.

Installation

11 General

11.1 Vivix by Formica Group – Formica Exterior Laminate Panels must be installed in accordance with the Certificate holder's instructions and recommendations.

11.2 The design of each installation must be checked by a suitably-experienced engineer who will need to take into account the nature and quality of the substrate, the location, the supporting structure and fixings.

11.3 The cladding support frame, its fixing to the substrate wall, and additional weatherproofing in the form of a suitable breather membrane behind the panels, are outside the scope of this Certificate.

11.4 Allowances must be made for thermal/moisture movement of the support system by the provision of adequate gaps between adjacent members. The panels must not straddle this gap.

11.5 The panels are cut using a circular saw and drilled using normal woodworking tools.

12 Procedure

12.1 The panels are installed onto the support frame using appropriate fixings in accordance with the Certificate holder's instructions.

12.2 Where possible, panels should not be installed in extreme conditions, such as cold and dry or hot and humid weather. Allowance should be made for the panels' use in different climatic conditions.

12.3 The panels must have a central fixed point with a 5 mm diameter hole for fixing. The remaining fixing points should be pre-drilled and have a 10 mm diameter, typically 1.5 x screw/rivet diameter.

12.4 Horizontal and vertical joints between the panels should be between 6 mm and 10 mm and left open. Fixings must be at least 20 mm from the edge and ten times the thickness of the panels from the corners.

12.5 External and internal corners, window joints and other miscellaneous details should be constructed in accordance with the Certificate holder's instructions.

Technical Investigations

13 Tests

Tests were conducted on Vivix by Formica Group – Formica Exterior Laminate Panels and the results assessed to determine:

- geometrical characteristics
- density
- flexural strength and modulus of rupture
- properties in relation to fire
- resistance to chemicals
- resistance to climatic shock
- resistance to immersion in boiling water
- resistance to wet conditions
- change in flexural strength and modulus of rupture following climatic shock cycling
- impact resistance
- tensile strength
- water absorption

- hygrothermal behaviour
- resistance to freeze/thaw cycling
- resistance to puncture
- accelerated weathering and colour stability.

14 Investigations

14.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

14.2 An assessment was made of the mechanical resistance and stability and durability of the panels, based on the Technical Approvals Certificate DIT-plus 491-p issued by the IETcc.

Bibliography

- BS 5427-1 : 1996 *Code of practice for the use of profiled sheet for roof and wall cladding on buildings — Design*
- BS EN 438-2 : 2005 *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Determination of properties*
- BS EN 438-6 : 2016 *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Classification and specifications for Exterior-grade compact laminates of thickness 2 mm and greater*
- BS EN 438-7 : 2005 *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Compact laminate and HPL composite panels for internal and external wall and ceiling finishes*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1: Actions on structures — General actions — Wind actions*
- NA to BS EN 1991-1-4 : 2005 + A1 : 2010 *UK National Annex to Eurocode 1: Actions on structures — General actions — Wind actions*
- BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- ETAG 034 : 2012 *Guideline for European Technical Approval of kits for external wall claddings, Part I Ventilated cladding kits comprising cladding components and associated fixings*

15 Conditions

15.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

15.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

15.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

15.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

15.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

15.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.