CI/SfB
(41) Rn6

Sika Ltd
Watchmead
Welwyn Garden City
Hertfordshire AL7 7BQ
Tel: 01707 394444 Fax: 01707 329129
e-mail: technical@uk.sika.co.uk
website: www.sika.com

Agrément Certificate No 05/4218
*Amendment**

Designated by Government to issue European Technical Approvals

SIKATACK PANEL ADHESIVE SYSTEM

Système de liaison pour panneaux de façade
Verbindungssystem für Verkleidungsplatten

Product

- *THIS CERTIFICATE OF CONFIRMATION RELATES TO THE SIKATACK PANEL ADHESIVE SYSTEM.*
- *The product is a polyurethane-based bonding system suitable for fixing composite, ceramic, high-pressure laminates or cement-based rainscreen cladding panels onto aluminium support frames which are fixed to steel or concrete structures (see section 7.1).*
- *It is essential that the cladding is installed in accordance with the rainscreen manufacturer's instructions and, where relevant, the requirements of this Certificate.*

continued

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which cladding products can contribute in achieving compliance. In the opinion of the BBA, the SikaTack Panel Adhesive System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	A1	Loading
Comment:		The system is acceptable for use as set out in sections 7.2 and 9.1 to 9.7 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The system is judged to meet the Class 0 requirements. See sections 10.1 to 10.4 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The system, when installed in accordance with this Certificate, will contribute to meeting this Requirement. See sections 11.1 to 11.5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See section 13 of this Certificate.

continued

• *The system is manufactured by Sika and distributed in the UK by the Certificate holder.*

Confirmation of a German Agrément No Z-36.4-18 issued by DIBt to Sika Chemie GmbH.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

In the opinion of the BBA, the SikaTack Panel Adhesive System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system can contribute to a construction meeting this Standard. See the *Installation* and *Practicability of installation* parts of this Certificate.
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		All the materials used in the system are acceptable. See section 13 of this Certificate.
Regulation:	11	Structure
Standard:	C2.1	Structure — Stability
Comment:		The system is acceptable as set out in sections 7.2 and 9.1 to 9.7 of this Certificate.
Regulation:	12	Structural fire precautions
Standard:	D6.5	Concealed spaces — Rainscreen cladding
Standard:	D8.1	Fire spread to adjoining buildings — Principles
Standard:	D8.2	Fire spread to adjoining buildings — Non-combustible materials
Standards:	D10.1 and D10.2	Fire spread on the external wall — Principles
Comment:		The system can comply. See sections 10.1 to 10.4 of this Certificate.
Regulation:	17	Resistance to moisture
Standard:	G3.1	Resistance to precipitation — Resistance to precipitation
Comment:		The system, when installed in accordance with this Certificate, will contribute to satisfying this Standard. See sections 11.1 to 11.5 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, the SikaTack Panel Adhesive System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 13 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The system, when installed in accordance with this Certificate, will contribute to satisfying this Regulation. See sections 11.1 to 11.5 of this Certificate.
Regulation:	D1	Stability
Comment:		The system is acceptable as set out in sections 7.2 and 9.1 to 9.7 of this Certificate.
Regulation:	E5	External fire spread
Comment:		The system is judged to meet the Class 0 requirements. See sections 10.1 to 10.4 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended)
Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See section:	*7 General* (7.1) of this Certificate.

Technical Specification

5 Description

5.1 The SikaTack Panel Adhesive System consists of four separate components:

- Sika Cleaner 205 — a de-greaser and adhesion promoter for use on aluminium and non-porous substrates forming the bond surface on support frames and cladding panels
- SikaTack Panel Primer — a single-part, epoxy-polyurethane-based primer for use on porous and non-porous substrates forming the bond surface on support frames and cladding panels
- SikaTack Double-sided Adhesive Tape — a closed cell, polyethylene adhesive tape to provide temporary support to the panel while the adhesive is curing and to regulate the thickness and spread of the adhesive
- SikaTack Panel Adhesive — a single part, moisture curing, polyurethane resin adhesive.

5.2 This Certificate only covers the adhesive system when used in conjunction with the proprietary cladding systems specified in section 7.

5.3 The support frame should be designed and installed to minimise accumulation of moisture on the bonded area. This requirement leads to a design consisting of vertical rails only.

5.4 The support frame, any sub-frame, the fixing to the substrate wall and other associated construction details, are outside the scope of this Certificate.

5.5 Factory production control on the system is exercised by a specially appointed inspection agency, reporting back to the German approval body DIBt.

6 Delivery and site handling

6.1 The cleaner, primer and adhesive are supplied in hermetically sealed containers with labels bearing details such as application, contents and quantity.

6.2 The double-sided adhesive tape is supplied in rolls suitably labelled.

6.3 All the components of the system must be protected from sunlight and the elements during transportation and storage. The manufacturer's storage instructions should be followed.

Design Data

7 General

7.1 For the purposes of this approval, the SikaTack Panel Adhesive System may only be used in conjunction with the approved cladding systems listed on the BBA website.

7.2 The wall and sub-frame to which the cladding is fixed should be structurally sound and constructed in accordance with the requirements of the relevant building regulations and national standards.

7.3 The wall to which the cladding is fixed should preferably be watertight to prevent damage to the substrate wall at the fixing.

7.4 Insulation behind the cladding needs to be suitably fixed to the inner leaf to resist the forces of wind suction incident upon it. Insulation should be of a rigid structure (eg boards). The ventilation pathway behind the cladding must retain a minimum width of 25 mm, or as required by the designer/specifier, and must not be allowed to become blocked nor the insulation moved into a position where it may be vulnerable to wetting.

7.5 A suitably qualified engineer or appropriately qualified person must check all design aspects of each installation.

8 Practicability of installation

Providing the limitations on ambient conditions are closely observed, the adhesive system is relatively easy to apply and, therefore, is suitable for installation by general cladding contractors as recommended by the Certificate holder.

9 Strength and stability

Wind loading

9.1 The adhesive bond may be assumed to have the mechanical properties of:

- allowable tensile stress 0.15 Nmm^{-2}
- allowable shear stress 0.12 Nmm^{-2}
- allowable shear deformation 1 mm
- theoretical bond width 10 mm.

9.2 The appropriate mechanical properties given in section 7.1 may be used for checking the resistance to wind of a chosen cladding system.

9.3 When calculating wind loads, higher pressure coefficients applicable to corners of the building should be used.

9.4 The sub-frame and the support rails should be so designed as to limit mid-span deflections to L/200, and cantilever deflections to L/150.

9.5 A suitably qualified engineer or an appropriately qualified person must check the design and installation of the cladding.

9.6 The supporting wall must be fully restrained and able to take the full wind load incident upon it. Any contribution from the cladding system, particularly for racking resistance must not be assumed.

9.7 Wind loads should be calculated in accordance with DD ENV 1991-2.4 : 1997 and BS 6399-2 : 1997.

Impact

9.8 The use of the adhesive system may contribute to improving the impact resistance of the cladding. However this contribution has not been investigated.

10 Behaviour in relation to fire

10.1 Support frames of aluminium construction are non-combustible and as such have a Class 0 fire rating in accordance with national Building Regulations.

10.2 The behaviour in fire of the cladding sheets and the fire resistance of particular assembled systems will depend on the sheets chosen, and are not covered by this Certificate. The user/specifier should consult the manufacturer of the chosen cladding system to ensure that the system meets the regulatory requirements. Suitable proof of this would be based on using test data from an established source, eg a UKAS[1]-accredited laboratory.

(1) United Kingdom Accreditation Service.

10.3 The incorporation of combustible material behind the cladding should be avoided wherever possible; any insulation should be non-combustible.

10.4 Cavity barriers should be incorporated behind the cladding as required under the national Building Regulations, but should not block essential ventilation pathways, for example by use of intumescent cavity barriers (not covered by this Certificate) or overhanging incombustible breaks at each floor level.

11 Air and water penetration

11.1 In common with similar cladding systems, those listed in Table 1 are not airtight or watertight, but are open-jointed, back ventilated and drained.

11.2 To prevent deterioration at the fixings the substrate wall should preferably be watertight.

11.3 To prevent damage to the substrate wall, a water-repellent insulant is recommended where insulation is used behind the cladding.

11.4 Provided that the inner wall is airtight, the effect of pressure equalisation will be to prevent rain being readily driven beyond the cladding. The support frame details should be such that any water driven behind the cladding is not allowed to accumulate on the adhesive bond but is removed by natural ventilation and drainage.

11.5 Where pressure equalisation may not apply, insulation behind the cladding should be protected by a breather membrane.

12 Maintenance and repair

12.1 The manufacturer's instructions for the particular cladding system adopted should be followed.

12.2 The cleaning procedure will depend on the particular cladding sheets used. However, in general, the use of high-temperature water, detergents or solvents should be avoided. For the removal of more persistent stains, the cladding manufacturer's advice should be sought.

12.3 Checks should be carried out periodically to ensure that ventilation and drainage pathways remain clear. This ensures efficient removal of moisture and contaminants from the adhesive bond edge.

12.4 In a repair, the cladding panel is cut on both sides of the vertical rail to allow access to the adhesive bead, which is then cut by a cheese wire or oscillating blade. The old adhesive and double-sided tape are removed, the bond area cleaned, and a new panel fitted using the procedures given in sections 14 and 15.

13 Durability

Based on the knowledge of the material, available test results and without exposure to sunlight, the adhesive system is expected to have a life in excess of 30 years in normal UK conditions. Generally, this is comparable to the life expectancy of the cladding systems with which the product is used.

Installation

14 General

14.1 The adhesive system must be installed in accordance with the manufacturer's recommendations, the requirements of this Certificate and the design specification.

14.2 Installers must be trained and recommended by the Certificate holder.

14.3 All design aspects of the chosen cladding system, including strength, thermal movement, ventilation and drainage, should be checked by a qualified engineer or other appropriately qualified person before installation. For strength calculations, the appropriate mechanical properties given in sections 7 and 9 may be used.

14.4 The ambient air temperature during installation should be between 5°C and 35°C and the relative humidity no higher than 75%. Furthermore, the bonding surfaces should be at a temperature of at least 3°C above the dew-point of air at the installation site[1].

(1) For further guidance, the advice of the Certificate holder should be sought.

14.5 To achieve full wind resistance, the adhesive should be allowed to cure for at least five hours within the recommended temperature range. Extremely dry atmospheric conditions, eg less than 30% relative humidity, should be avoided.

15 Procedure

15.1 For a given cladding system, the vertical rails are set out and fixed to the substrate wall, or sub-frame, in accordance with the design drawings. The rails should be parallel, and in a single vertical plane, so that a uniform adhesive bond with the cladding is achieved. For a satisfactory installation, this stage should be carefully checked.

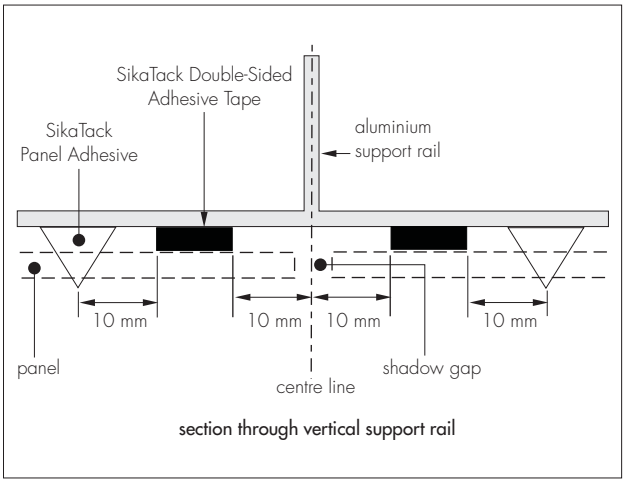
15.2 A predetermined horizontal datum is first marked on the support frame. Correct fixing of the first row of panels to this datum is critical in achieving uniform gaps and panel alignment throughout the installation.

15.3 The bonding surface of a mill-faced aluminium sub-frame is roughened by a suitable abrasive. With profiled aluminium, roughening is not required.

15.4 The bonding surfaces of the carrier rails and cladding panels are de-greased, using SikaTack Cleaner 205, and primed using the SikaTack Panel Primer, and allowed to dry. SikaTack Panel Adhesive must be applied when the primer is dry and within eight hours of its application. Should this time be exceeded, the bond surfaces must be re-primed.

15.5 The SikaTack Double-sided Adhesive Tape is applied to the aluminium rail (see Figure 1), to provide temporary support to the panel while the adhesive is curing.

Figure 1 Adhesive fixing pattern



15.6 A continuous, uniform bead of SikaTack Panel Adhesive is applied(1) near the opposite edge of the rail, approximately 10 mm away from the assembly tape.

(1) Extruded through a pre-cut nozzle giving a triangular run of adhesive 10 mm in height and 8 mm in width.

15.7 After removing the protective strip from the assembly tape, the shadow gap trims, where specified or required, are bonded into position.

15.8 The initial panel is positioned near its bottom edge on the freshly applied adhesive and, after careful alignment, pressed firmly against the assembly tape to provide continuous contact with it.

15.9 Subsequent panels are applied in a similar manner using suitable packers to achieve a continuous and uniform shadow gap between panels. For heavy panels, additional temporary supports may be required.

15.10 After initial set of the adhesive, any packers or temporary supports are removed.

15.11 Careful planning is essential to ensure that, where a gap is provided to allow for thermal movement of the vertical support rail, the cladding panel does not 'straddle' this gap.

Technical Investigations

The following is a summary of the technical investigations carried out on the SikaTack Panel Adhesive System.

16 Investigations

16.1 Based on DIBt Certificate No Z-36.4-18, an assessment was made of the system's mechanical resistance, durability, behaviour in relation to fire and practicability of installation.

16.2 An assessment was made of the manufacturing process, associated quality control procedures, and the system's history of use.

16.3 An assessment was made of the bonding system's practicability of installation by visits to sites in progress.

16.4 The Certificate holder's technical literature and drawings were examined for general content.

Bibliography

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

DD ENV 1991-2.4 : 1997 *Eurocode 1. Basis of design and actions on structures — Actions on structures — Wind actions (together with United Kingdom National Application Document)*

Conditions of Certification

17 Conditions

17.1 This Certificate:

(a) relates only to the product that is named, described, installed, used and maintained as set out in this Certificate;

(b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;

(c) is valid only within the UK;

(d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;

(e) is copyright of the BBA;

(f) is subject to English law.

17.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

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

(a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) remain covered by valid German data; and

(c) are reviewed by the BBA as and when it considers appropriate.

17.4 In granting this Certificate, the BBA is not responsible for:

(a) the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product;

(b) the right of the Certificate holder to market, supply, install or maintain the product; and

(c) the actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, the SikaTack Panel Adhesive System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 05/4218 is accordingly awarded to Sika Ltd.

On behalf of the British Board of Agrément

Date of issue: 30th March 2005

Chief Executive

Certificate amended on 21st June 2010 to revise the list of approved cladding systems for display on the BBA website.

British Board of Agrément
Bucknalls Lane
Garston, Watford, Herts WD25 9BA
Fax: 01923 665301

e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk