

INSTALLATION AND CONSUMPTION – EFFISUS ECOFACADE MEMBRANES

1. Summary

Effisus Ecofacade Membranes offer the opportunity to execute window and facade joints in a permanently airtight, waterproof and, consequently, moisture vapour-proof manner that provides the required long-term elasticity and conforms to DIN 4108 and RAL quality guidelines.

Ever since the Energy Conservation Directive (ECD) has come into power, the impermeability requirements for connective building shell joints have become even stricter. The required values may also be inspected at any time (Blower Door Test).

To ensure the highest installation quality, the main features of the Effisus Ecofacade Membranes and its accessories are here summarized, as well as the installation procedure in full detail.

2. Usages scope

In general: This system of Effisus Ecofacade Membranes can be used as a first or second waterproof sealing barrier in filling or sealing works. Filling of joints with big movement amplitude (5% of joint width).

3. Presentation and Product Details

3.1 Effisus Ecofacade Membrane

Waterproofing membrane made of vulcanized EPDM rubber. Details: see table.

Technical data	Norm	Value
Thickness -5% +10% (mm)	EN 1849-2	0.60 – 0.75 – 1.00 – 1.30 – 1.50
Superficial mass (g/m ²) (+/- 10%)	EN 1849-2	780 – 970 – 1250 – 1580 - 1830
Nominal length		20 or 25m
Nominal width		5cm multiples between 0.10 and 1.30m
Colour		Black
Waterproofing under water pressure	EN 1928	2 kPa
Permeability to water steam μ	EN 1931	60.000 \pm 25.000
Permeability to air (m ³ /h.m.daPa ² /3)	EN 12114	\leq 0.1
Tensile strength (N/mm) new For all thicknesses	EN 12311-2 B Method	L: \geq 4 L: \geq 6
Elongation at rupture (%) new For all thicknesses	EN 12311-2 B Method	\geq 300
Tensile strength to tear by nail (N)		
At 0.60mm		L \pm 80 D \pm 120
At 0.75mm	EN 12310-1 + EN 13859 annex B	L \pm 80 D \pm 120
At 1.00mm		L \pm 90 D \pm 150
At 1.30mm		L \pm 130 D \pm 200
At 1.50mm		L \pm 180 D \pm 270
Static penetration – concrete	EN 12730	L15
Dynamic penetration (mm)	En 12961: 2006	\geq 200

Thickness uses:

- Waterproofing as second barrier: $\geq 0.60\text{mm}$;
- Waterproofing as first barrier: $\geq 1.0\text{mm}$;
- Horizontal unprotected waterproofing: $\geq 1.30\text{mm}$.

Identification: label with product name, thickness, width and length.

Available widths: 50mm multiples between 100mm and 1300mm.

Thicknesses: 0.60 – 0.75 – 1.00 – 1.30 and 1.50mm.

Roll length: 20m.

Other widths and lengths are available if required.

3.2 Effisus Ecofacade Membrane – Options

3.2.1 Effisus Ecofacade SA-Edge Membrane

Effisus Ecofacade Membrane with 1 or 2 self-adhesive butyl based edges.

Available widths: 50mm multiples between 100mm and 400mm.

Thicknesses: 0.60 – 0.75 – 1.00 – 1.30 and 1.50mm.

Roll length: 20m.

The width of the self-adhesive strips is dependent of the width and thickness of the membranes:

- 150mm with 20mm self-adhesive edges,
- 200, 250mm with 30mm self-adhesive edges,
- 300, 400mm with 40mm self-adhesive edges.

Over smooth surfaces the self-adhesive edges do not need gluing or additional fixing.

Over wet surfaces, the use of a primer will be required before bonding.

3.2.2 Effisus Ecofacade P-Fix Membrane

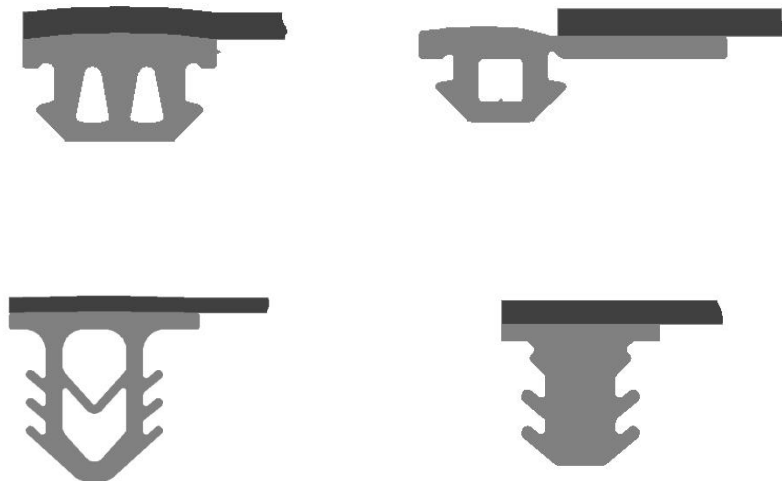
Effisus Ecofacade Membrane with 1 or 2 fitting profiles for facade / framework profiles.

Available widths: 50mm multiples between 100mm and 600mm.

Thicknesses: 0.75 – 1.00 – 1.30 and 1.50mm.

Roll length: 20m.

The fitting profile adapted to the groove of the facade / framework profiles does not require gluing or additional fixing.



Figs. 1A, 1B, 1C, 1D – Fitting profile

3.2.3 Standard and pre-fabricated elements

The pre-fabricated elements of Effisus Ecofacade Membranes allow a simple and rational waterproofing of all critical points, such as:

- top corners,
- very lengthy connections,
- exterior and interior corners, water exits, etc., cut-to-size elements.

These elements allow a preliminary assembly regardless of the weather conditions. The pre-fabricated elements can be mechanically fixed, fixed by fitting, or glued to the frame profile.

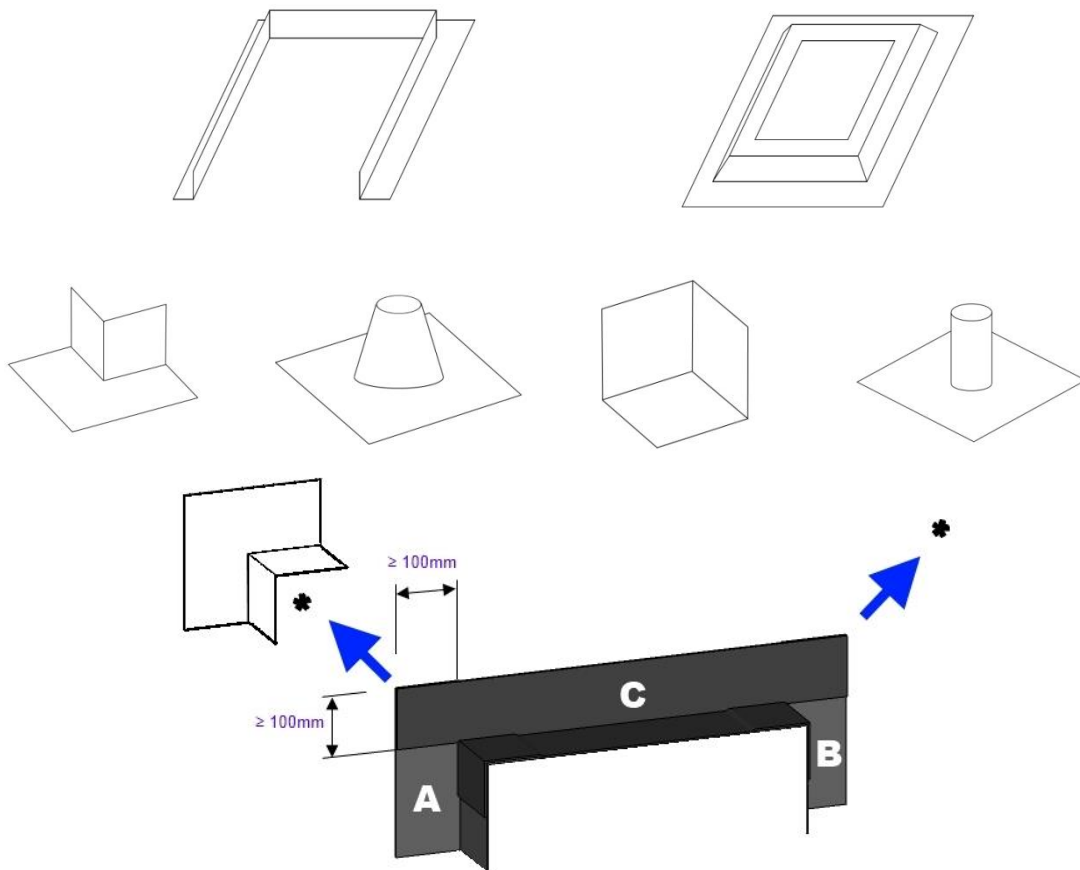


Fig. 2 – Pre-fabricated elements and standard elements

3.2.4 Effisus Ecofacade Inside Membrane

The Effisus Ecofacade Inside Membrane has a lower water vapour permeability, being suitable to be used on the interior of the thermal insulation.

Its dimensions (thicknesses (the 0.60mm thickness does not exist), widths and lengths) are the same as Effisus Ecofacade Membrane.

The water vapour diffusion resistance factor of Effisus Ecofacade Inside Membrane is approximately 3 times higher than the one from (of) the Effisus Ecofacade Membrane.

Identification: label with product name, thickness, width and length.

The (the) membrane surface is textured and it has an identifiable printing.

The bonding accessories are the same as of the Effisus Ecofacade Membrane.

4. Accessories

4.1 Adhesives – Usages of the different adhesives

Overlapping Membranes / Mineral surfaces: concrete – porous or smooth / Metals: lacquered aluminium, galvanized, zinc / PVC: PVC profiles / Wood: crude or treated, composites / Old bituminous surfaces – preform test first.

In damp surfaces: first apply a layer of Effisus Coat NP Primer.

One should always test bonding first – the bonding surface should be clean, dry and degreased.

4.1.1 Contact Glue - Effisus Bonding KT Adhesive

Contact glue made of synthetic rubber.

This adhesive should be used in smooth bonding surfaces. The level of unevenness should not exceed 1mm. If this is not the case, a perimeter sealing should be made with Effisus Block JP Sealant.

4.1.2 Adhesive Paste - Effisus Bonding KF Adhesive

Paste adhesive made of synthetic rubber.

To safely use this adhesive, the level of unevenness should not exceed 15mm.

4.1.3 Adhesive Paste - Effisus Bonding KF+ Adhesive

Paste adhesive made of polyurethane with low content of solvents.

4.1.4 Self-adhesive Edges - Effisus SA-Edge Strips

The butyl self-adhesive edges are usually first stuck to the Effisus Ecofacade Membranes.

The self-adhesive edges width varies according to the width and thickness of the membrane:

- 150mm with self-adhesive edge of 20mm,
- 200, 250mm with self-adhesive edge of 30mm,
- 300, 400mm with self-adhesive edge of 40mm.

Over smooth surfaces the self adhesive edge does not require gluing or additional fixing.

4.2 Accessories: Primer, Cleaner and Sealant

4.2.1 Effisus Coat NP Primer

Primer to prepare surfaces before the bonding of the Effisus Ecofacade SA-Edge Membranes.

In porous, damp or when applying with temperatures within 5°C e -10°C, use this primer for surface treatment before the use of the adhesives Effisus Bonding KT and Effisus Bonding KF.

Using Primer Effisus Coat NP in porous and damp surfaces			
	Effisus Bonding KT Adhesive	Effisus Bonding KF Adhesive	Effisus SA-Edge Membrane
Porous surfaces			x
Highly porous surfaces	x		x
Damp surfaces	x	x	x

4.2.2 Effisus Setup PR Cleaner

Before applying any of the adhesive options mentioned earlier, use this product first to clean smooth surfaces.

4.2.3 Effisus Block JP Sealant

Sealant to seal the top and bottom of one membrane bonded with self-adhesive Effisus SA-Edge Strips.

Sealant to seal top and bottom of one membrane that was previously bonded with the Effisus Bonding KT Adhesive, in overlapping joints and other trims.

5. Additional mechanical fixing

If properly used, no additional fixing is required when applying the above-mentioned adhesives, however it is advisable in the following cases:

- if the bonding width is smaller than the recommended minimum or if any thermal action is predictable to jeopardize the bonding of the Effisus Ecofacade Membrane,
- if the facade details are of difficult access, it should be anticipated the use of mechanical fixing on top of the membrane,

The mechanical fixing should be performed with aluminium termination bars fixed to the support with a 250mm maximum spacing between fixing points.

6. Production, marketing and technical solution

Up-Way Systems is the Effisus Ecofacade Membranes and Accessories supplier.

The different components are dosed, blended, its calendaring and vulcanization is performed.

Under industrial control, laboratory testing of the manufactured goods is performed and continuously recorded. This control is subject to external periodic inspection.

7. Installation instructions

7.1 General Guidelines

It is the end user's responsibility to ensure the quality of the installation, by following the installation instructions in this document and by periodically checking the installed materials.

Upon request, Up-Way Systems is available to train working staff.

7.1.1 Storage

The Effisus Ecofacade Membrane rolls and system accessories should be stored on hard, clean and dedicated stand, in a place that can protect them from extreme weather conditions, and be kept within temperatures of 5°C and 20°C.

7.1.2 Installation conditions

The Effisus Ecofacade Membrane should not ever be installed under stress, therefore its width should be calculated taking in consideration the predictable differential movements of the support.

The bonding should be made on dry, ungreased, clean and dust free supports.

Prevent any contact of the Effisus Ecofacade Membranes with greasy products or oils.

In case of rainfall (rain, snow, intense fog and if any risk of condensation is present), the adhesive setting must be stopped.

Over iced surfaces, or in case of temperatures below -10°C, bonding is not allowed. For temperatures between -10°C and 5°C, Effisus Coat NP Primer must be used.

Superior membranes should always overlap inferior membranes, so to allow the regular water flow.

7.2 Waterproofing in facades and windows over different supports

The Membrane should be bonded to the support surface using the Effisus Bonding KT Adhesive, Effisus Bonding KF Adhesive, Effisus Bonding KF+ Adhesive or the self-adhesive Effisus SA-Edge Strips.

7.2.1 Bonding using Effisus Bonding KT Adhesive

Effisus Bonding KT Adhesive should be applied on both bonding surfaces (support surface and membrane), with a minimum width of 40mm, complying with the minimum width, and in accordance with the widths and thicknesses specified in “Bonding Widths” (see table at item 7.2.3 in this data sheet).

The adhesive must dry off until it reaches the point when by touching it with the finger it no longer creates strings (there is no transmission of material between the finger and the surface). The average drying time at 20°C and 50% Relative Humidity: 10 minutes.

Apply membrane over the support and apply pressure with the help of a steel roll.

It will be difficult to make corrections to the membrane’s position and thus should be avoided.

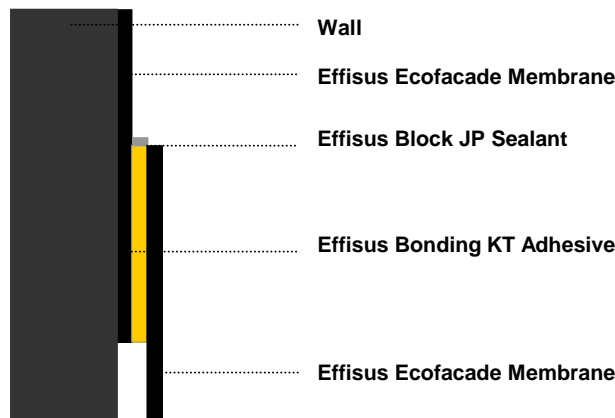


Fig. 3 – Bonding using Effisus Bonding KT Adhesive

7.2.2 Bonding when using Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive

The Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive is a paste / gluing mastic to be applied with a gun; the number of adhesive strings to lay down depends on the width and thickness of the Effisus Ecofacade Membrane.

The absolute minimum is of 1 line with 8 to 10mm in diameter that, when crushed, forms a gluing band with approximately 4cm wide (to confirm minimum gluing widths: see table at item 7.2.3 in this data sheet).

After applying the Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive on the support, directly apply the Effisus Ecofacade Membrane over the surface and apply pressure over the whole bonding area with a steel roll. It is possible and easy to correct the membrane’s position.

The bonding strength will progressively increase until the moment when all the solvents in the adhesive fully evaporate, which can take from 10 to 14 days.

When exposed to UV’s the Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive may suffer discoloration.

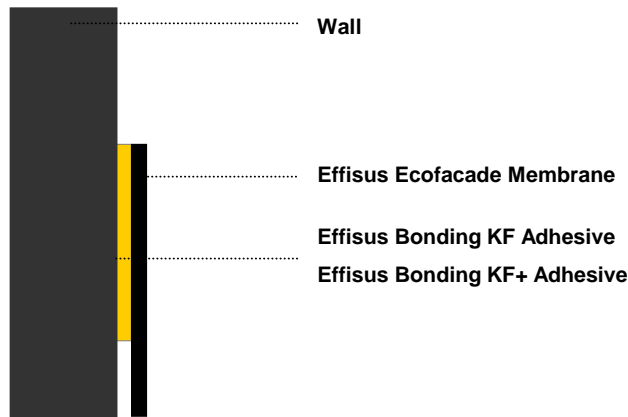


Fig. 4 – Bonding with Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive

7.2.3 Bonding Self-Adhesive Effisus SA-Edge Strips

Smooth, clean, and non absorbent support surfaces do not require previous treatment. They should only be ungreased with Effisus Setup PR Cleaner.

Porous and absorbent supports should be previously treated with Effisus Coat NP Primer.

Cut the Effisus Ecofacade SA-Edge membrane with the suitable length. Remove the self adhesive band's protection, step by step, as one progresses with the bonding and presses the membrane against the support, in the right position.

Bonding with self-adhesive Effisus SA-Edge Strips does not require any additional gluing. On the facade highest part, a sealing can be used by applying Effisus Block JP Sealant and a mechanical fixing.

It will be difficult to make corrections to the membrane's position and thus should be avoided.

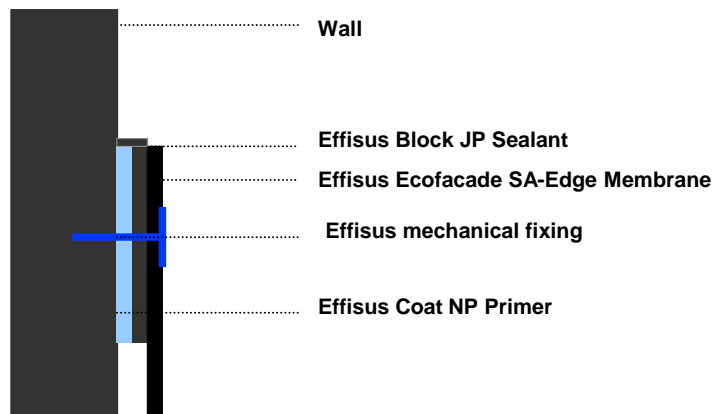


Fig 5.1 – The facade top, in special situations where it is difficult to remove the exterior coating.

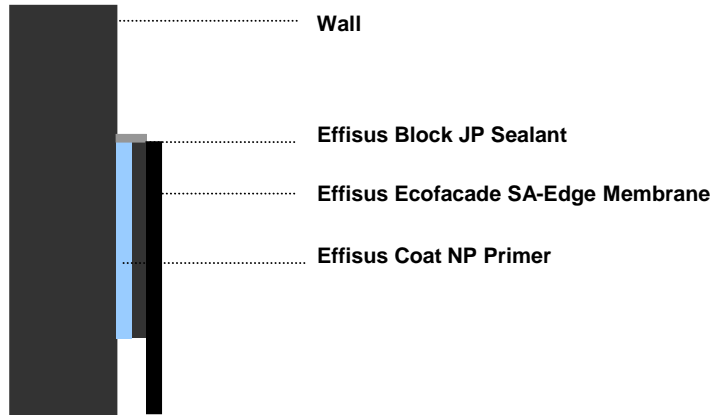


Fig. 5.2 – The facade top, in special situations where bonding surface is easily reachable.

Bonding widths over the support: Membrane thickness: 0.60 – 0.75 – 1.00mm		
	Effisus Bonding KT Adhesive	Effisus Bonding KF/ KF+ Adhesive
Membrane Width	Application width of the Effisus Bonding KT Adhesive	Number of Strings* of Effisus Bonding KF/ KF+ Adhesive
100 – 250mm	40mm	1
250 – 500mm	40 – 80mm	1 – 2
500 – 1300mm	80 – 120mm	2 – 3
Bonding widths over the support: Membrane thickness: 1.30 – 1.50mm		
	Effisus Bonding KT Adhesive	Effisus Bonding KF/ KF+ Adhesive
Membrane Width	Application width of the Effisus Bonding KT Adhesive	Number of Strings* of Effisus Bonding KF/ KF+ Adhesive
100 – 200mm	40mm	1
200 – 400mm	40 – 80mm	1 - 2
400 – 1300mm	80 – 120mm	2 - 3

*Strings with 8 to 10mm diameter to provide a bonding surface, after crushing, of ± 40mm.

7.2.4 Effisus Ecofacade P-Fix Membrane connections with aluminium or PVC profiles.

The Effisus Ecofacade P-Fix Membranes should be used with compatible profiles that match the aluminium / PVC profiles.

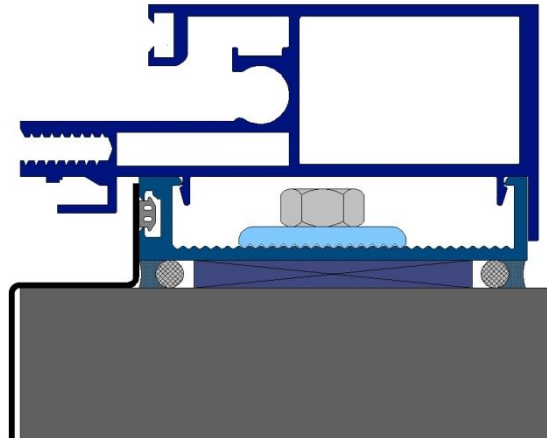


Fig. 6 – Connection of the Effisus Ecofacade P-Fix Membrane with profile

7.3 Overlapping Joints

The membranes must overlap, without any stress. The overlapping minimum is of 80mm. The membrane should have a relaxing period of at least 30 minutes.

7.3.1 Overlapping joints with Effisus Bonding KT Adhesive

The binding should be done applying the Effisus Bonding KT Adhesive at the ratio of 1250g/m² of joint over both faces to be bond (minimum overlapping is of 8cm). As soon as the adhesive is dry, bind both faces of the membranes and apply steady pressure. Depending on weather conditions, drying time goes from 15 to 30 minutes.

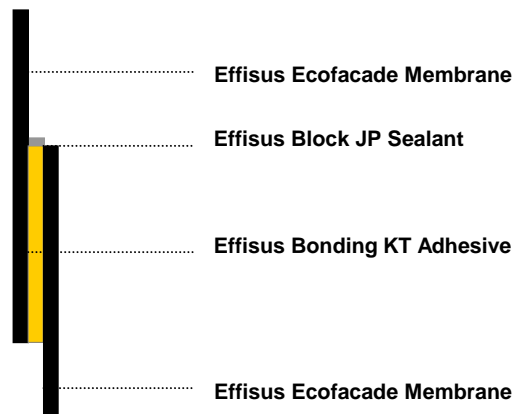


Fig. 7 – Overlapping joint with Effisus Bonding KT Adhesive

7.3.2 Overlapping joints with Effisus Bonding KF Adhesive

To perform an overlapping bonding of two Effisus Ecofacade Membranes with the Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive, the overlap should have at least a 8cm.

Apply 2 strings of Effisus Bonding KF/ KF+ Adhesive over the inferior Effisus Ecofacade Membrane. Overlap the superior Effisus Ecofacade Membrane and apply steady pressure.

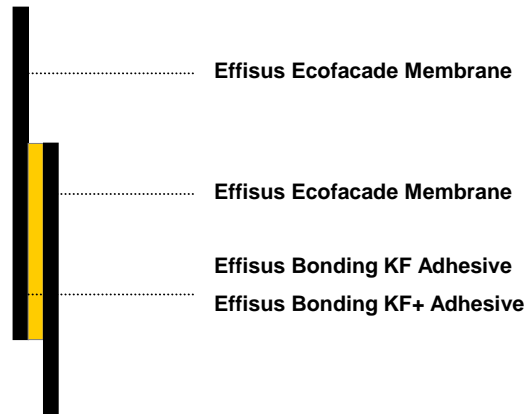


Fig. 8 – Overlapping joint with Effisus Bonding KF Adhesive / Effisus Bonding KF+ Adhesive

7.3.3 Overlapping joints with self-adhesive strips - Effisus SA-Edge Strips

Detach the protective film from the self adhesive strip. Apply the superior membrane over the self adhesive strip and apply steady pressure.

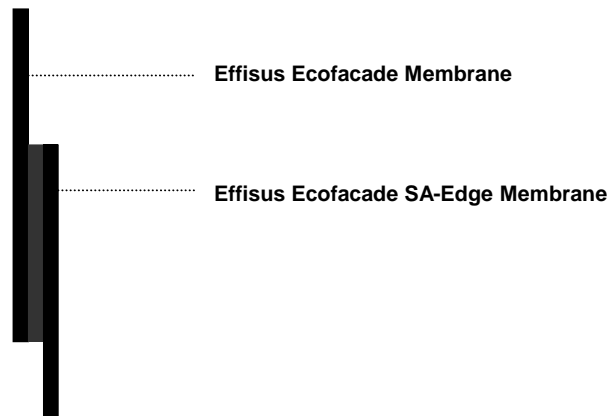


Fig. 9 – Overlapping joint with Effisus SA-Edge Strips

8. Repairs

Any repairing should be made using Effisus Ecofacade Membranes and system accessories, under Up-Way Systems' approval.

9. Compatibility

The Effisus Ecofacade Membranes are compatible with the materials using in classical construction, however, if in doubt perform a compatibility test and consult with Up-Way Systems.

The possibility of installing this materials over a waterproof bituminous membrane must be controlled and Up-Way System must be consulted.

Every time that Effisus Ecofacade Membranes are to be used in aggressive atmospheres (ateliers, laboratories, ...) Up-Way Systems must be consulted.

10. Accessories Consumption

Accessories Consumption				
Product	Colour	Delivery	Consumption	Storage
Effisus Coat NP Primer	Black	4,5kg Can	At an application width of 5cm: 10-15g/m, depending on substrate	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.
Effisus Setup PR Cleaner	Clear	1l Can 5l Can	35m ² /litre	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.
Effisus Bonding KT Adhesive	Black	4,5Kg Can	400-500g/m ² depending on substrate. At a bonding width of 8cm approx. 50g/m	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.
Effisus Bonding KF Adhesive	Black	600ml Billet	At a bonding width of 8cm approx. 100g/m, 600ml allow for a 7m bond at a width of 8cm	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.
Effisus Block JP Sealant	Black	310ml Tube	15ml/tube	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.

11. Test Results and Certification

The technical details are presented in this document. Results from detaching tests will be made available upon request.

All the details presented were obtained from internal and external laboratories.

Details from the Effisus Ecofacade Membranes were obtained in accordance with the norms: EN 1849-2, EN 1928, EN 1931, EN 12311-2 B-Method, EN 12114, EN 12961:2006, EN 12730.

All the products also have EC certification if required.

For further information contact Up-Way Systems.

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