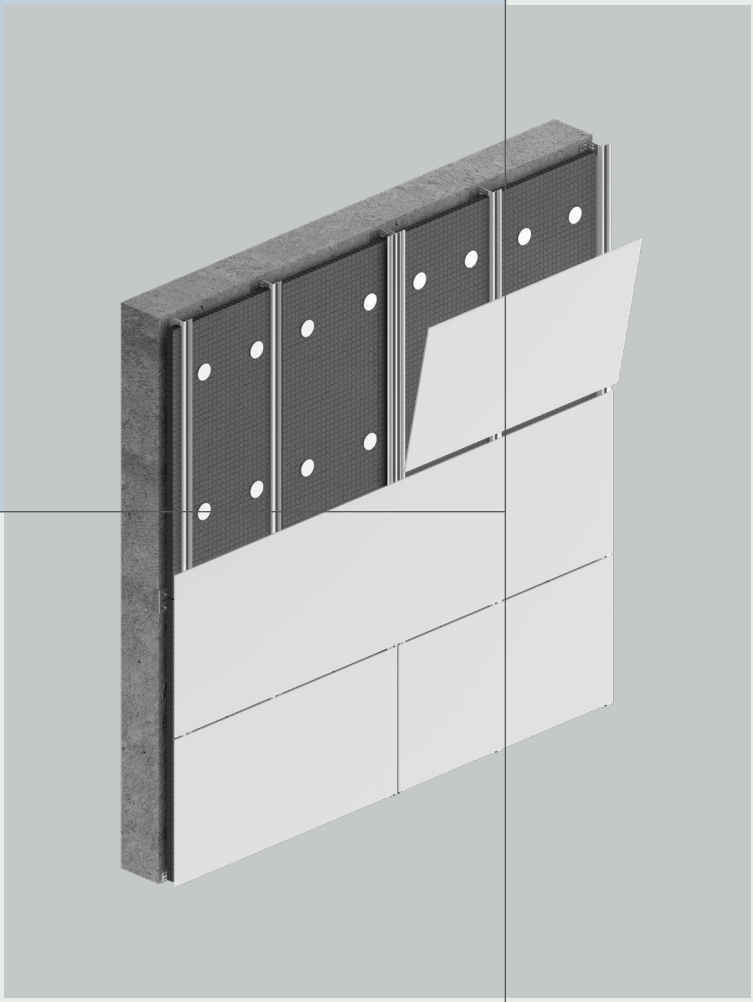
COSENTINO

DKC system Sika® chemical anchor

COSENTINO® FACADES
DKC SYSTEM. SIKA® CHEMICAL ANCHOR



DEKTON

TECHNICAL CONTENT

Index

Ventilated facades

The new requirements for energy savings and efficiency improvements in buildings have contributed to the fact that the facade is not only the skin and the external image of the building, but has become a vital element in improving its efficiency.

Some of the benefits of Dekton® ventilated facades are the following:

→ Excellent thermal insulation.

→ Air gap. It eliminates all types of condensation and dissipates much of the energy absorbed by the outer layer.

→ Ultra-compact material with zero water absorption, which means high durability and very low maintenance.

→ Large format slabs up to 3,200 x 1,440 mm and a wide range of designs.

→ Ryanair Detached House - Dekton® Sirocco.

→ Houses in the Sanatorio Blanco building (Oviedo, Spain).

Adhesive system

Sika® adhesive solutions for fixing Dekton® Protek slabs are able to absorb vibrations caused by wind loads and ensure long-lasting adhesion in the harshest conditions. For this purpose, Sika® tests the adherence of bonded materials by subjecting them to aging tests.

The adhesive system prevents the slab from sliding vertically and absorbs expansion and shrinkage due to temperature changes in the environment.

The information contained in this document is provided for general guidance only. Since structural bonding applications are considered high risk applications and conditions as well as substrates may vary greatly, customers and fitters must test the suitability of the product for each specific project and contact Sika® for advice.

Adhesive system for ventilated facades with Dekton® Protek by Cosentino® slabs on exteriors. It consists of:

→ SikaTack® Panel elastic adhesive.

→ SikaTack® Aktivator-205 adhesion promoter.

→ SikaTack® Panel Primer for the preparation of the gluing surfaces.

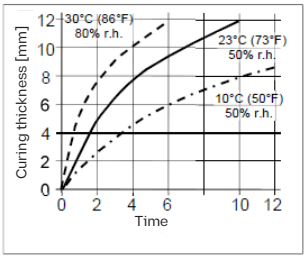
→ SikaTack® Panel 3 double-sided tape.

→ Dekton® Protek by Cosentino® slab.

SikaTack® elastic adhesive: One-component adhesive

Technical data		
Chemical base		1-C Polyurethane
Color (CQP[1] 001-1)		Ivory white
Cure mechanism		Moisture-curing
Density (uncured) (CQP 006-4)		1.1 Kg/L approx.
Thixotropy		Very good
Ambient application temperature		5 °C to 35 °C
Skin time[2] (CQP 019-2)		35 min. approx.
Curing speed (CQP 049-1)		See diagram 1
Shrinkage (CQP 014-1)		6% approx.
Shore A-hardness (CQP 023-1 / ISO 868)		45 approx.
Tensile strength (CQP 036-1 / ISO 37)		2.5 MPa
Elongation at break (CQP 036-1 / ISO 37)		500% approx.
Tear propagation resistance (CQP 045-1 / ISO 34)		7 N/mm
Tensile lap-shear strength (CQP 046-1 / ISO 4587)		2 MPa approx.
Glass transition temperature (CQP 509-1 / ISO 4663)		- 40 °C approx.
Service temperature (CQP 509-1 / ISO 4663)	-	- 40 °C to - 90 °C
	4 hours	130 °C
	1 hour	150 °C
Shelf life (Storage BELOW 25 °C) (CQP 016-1)		9 months (Storage in a dry place, below 25 °C)

→ (1) CQP = Corporate Quality Procedure; (2) 23 °C (73 °F) / 50% r.h.



→ Diagram 1: SikaTack® Panel curing speed.

SikaTack® Panel Primer: Primer for strips and slabs

Technical data		
Chemical base		Solvent-based Epoxy solution
Color (CQP[1] 001-1)		Black
Solid content		32%
Application temperature		5 °C to 40 °C
Application method		Brush, felt or foam applicator
Consumption (depending on substrate porosity)		50 ml/m²
Flash-off time	**≥ 15 °C**	10 minutes
	< 15 °C	30 minutes
	Maximum	8 hours
Shelf life		9 months (Store in sealed container in up-right position in a cool, dry place below 25 °C)

SikaTack® Aktivator-205 promoter: Adhesion promoter for slabs and strips

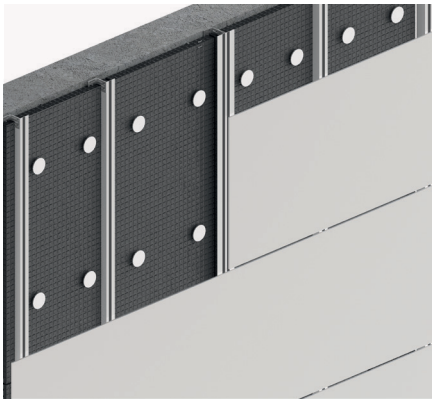
Technical data		
Description		Solvents for non-porous substrates
Application		Adhesion promoter for non-porous substrates for substructure and slabs
Color		Colorless
Application temperature		+ 5 °C to + 40 °C
Application method		Wiping with lint-free paper towel
Consumption		20 ml/m²
Flash-off time	**Minimum**	10 minutes*
	Maximum	2 hours*
Shelf life (CQP 016-1)		12 months (Store in sealed container in a cool, dry place below 25 °C)
Presentation		750 ml bottles; 4 l
Precautions		Extremely flammable. Consult the *Safety Data Sheet* before use. Do not smoke and keep away from sources of ignition

→ (*) 23 °C / 50% r.h. (For specific applications, temperature and drying time may be different).

SikaTack® Panel 3 tape: Double-sided adhesive tape

Technical data		
Chemical base		Closed-cell polyethylene foam core with pressure sensitive adhesive
Color		Anthracite
Tensile strength (ISO 527)		MD(2) 25 N / 15 mm; TD(3) 20 N / 15 mm
Elongation at Break (ISO 527)		MD 250%; TD 150%
Density		50 Kg/m³
Thickness (without protector)		3 mm + 10%
Compressive strength (ISO 844)	**10% deformation**	0.02 MPa
	25% deformation	0.02 MPa
	50% deformation	0.02 MPa
Peel adhesion (FTM(1) 1)		23 N / 25 mm (180 °C, 30 min., stainless steel)
Shear strength (FTM 8)		150 h (1 Kg / 25 x 25 mm)
Application temperature		+ 5 °C to + 35 °C
Service temperature		- 40 °C to + 70 °C
Shelf life		24 months (Store in sealed container in a cool, dry place below 25 °C. Do not expose to direct sunlight)

→ (1) FTM: FINAT Test Method; (2) MD: Machine Direction; (3) TD: Transverse Direction.



→ DKC system details.

General recommendations

→ The installation of Dekton® on facades requires qualified personnel. Only professionals with proven experience are recommended for this type of work.

→ Fitters are recommended to implement a strict quality control system. Quality control is primarily the responsibility of the fitter.

→ The instructions of the project management should be followed and the information contained in the Technical Data Sheets or on the packaging should be checked before using any product.

→ It is essential to use the right tools for each type of work.

→ Occupational safety regulations must be observed.

Preparation of the substrate

→ Check that the substrate is stable, non-deformable and not at risk of cracking.

→ The substrate must have deviations of less than 3 mm per meter vertically and 10 mm every 2 meters horizontally.

→ Determine the final level of the facade, taking into account any projections, overhangs or any element that protrudes from the vertical of the facade.

→ Structural joints must be maintained and expansion joints must also be considered.

Air gap

→ The air gap should have a minimum clearance of 30 to 100 mm to allow for natural upward convection behind the cladding.

→ The total effective area of ventilation openings will be 120 cm^2 per 10 m^2 of facade area between slabs.

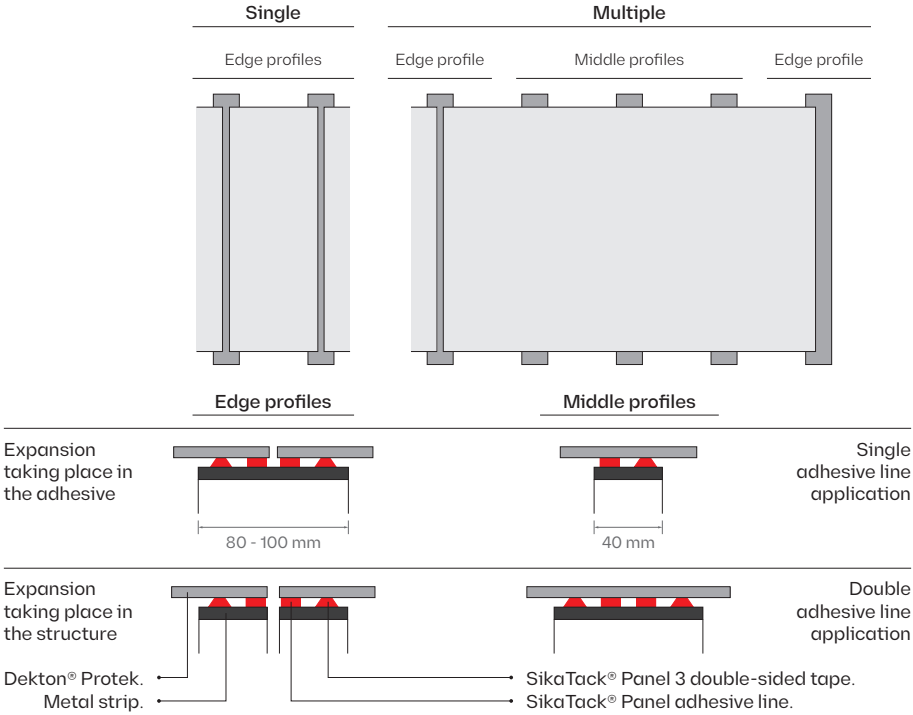
→ The thickness and features of the thermal insulation will be defined according to the project.

Preparation & reporting of the structure

Aluminum substructure

→ Due to the wide variety of aluminum grades and treatments available on the market, prior laboratory testing is required. However, in all cases the alloys must be of type 6060 or higher in order to ensure adequate adhesion.

→ Sika® recommends cleaning and priming the surface with SikaTack® Aktivator-205 and SikaTack® Panel Primer.



Both SikaTack® Panel adhesive and SikaTack® Panel 3 double-sided tape must be applied along the entire length (height) of the slab in a continuous line.

→ SikaTack® Panel adhesive line width: 10 mm.

→ SikaTack® Panel 3 double-sided tape width: 12 mm.

Slab installation

General recommendations

→ The workplace must be dry and dust-free. All substrates and adhesives must never be exposed to direct sunlight, rain, snow or other direct climatic impacts.

→ The optimum application temperature of the products is between 15 °C and 30 °C (60 °F to 85 °F). As this may be difficult to achieve with on-site construction, the SikaTack® Panel system can be used between 5 °C and 35 °C (40 °F to 95 °F).

→ The relative humidity must not exceed 75%.

→ After installation, the temperature must not fall below + 5 °C for five hours.

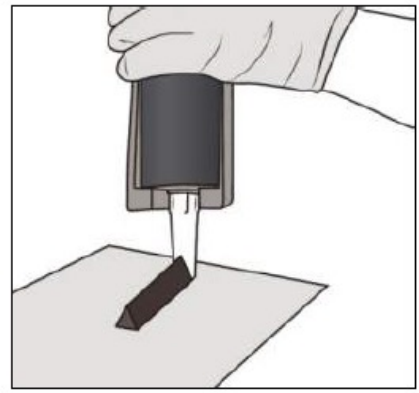
→ The temperature of the components to be joined (facade panels and substructures) must be at least 3 °C above the dew point of the air to prevent surface condensation.

→ SikaTack® Panel adhesives are applied manually directly from cartridges or unipacks using a hand or compressed air (pneumatic) gun.

→ The adhesive must be applied uniformly and without air bubbles.

→ One-component products form a skin after a certain time (skin formation time), which varies depending on humidity and ambient temperature.

→ Apply the SikaTack® Panel adhesive in the form of a triangular line using the triangular nozzle supplied (8 mm wide and 10 mm high), leaving a gap of at least 5 mm up to the double-sided tape and to the edge of the substructure profiles.



→ Performing a few test applications will help you to find the right application speed to obtain the correct joint dimensions.

→ The manufacturer of the adhesive solution (Sika®) requires a site inspection using the form ‘Cladding Installation and Handling - Daily Record’.

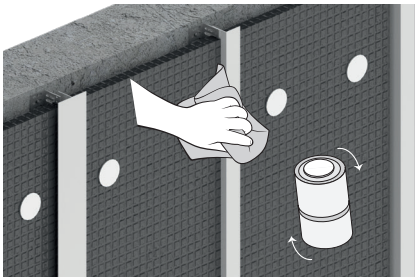
Installation

1. Cleaning

→ Shake the SikaTack® Aktivator-205 promoter bottle several times.

→ Apply a thin layer of SikaTack® Aktivator-205 promoter on the substrate (strip) using a disposable cellulose paper, rubbing from top to bottom (not in a circle) as many times as necessary, until it stops staining and always in the same direction.

→ Discard the paper with each new application.



2. Allowing for evaporation for 10 minutes

3. Priming

→ Shake the SikaTack® Panel Primer bottle vigorously to obtain a homogeneous mixture (you should hear the movement of the steel balls hitting the bottle).

→ Apply the primer with a clean, uncontaminated brush or sponge along the entire surface in contact with the adhesive.

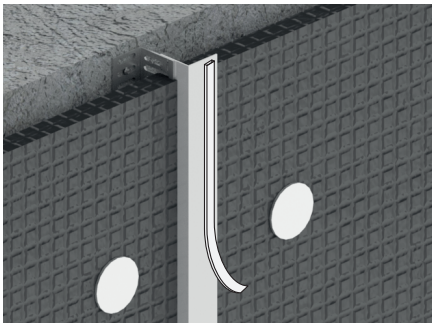
→ Rub from top to bottom (not in a circle), applying a thin layer. Once dry, do not apply another coat on top.

4. Allowing for evaporation for 30 minutes

5. Applying the tape

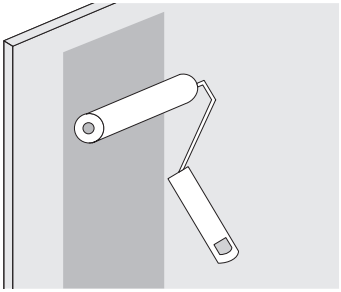
→ Apply the SikaTack® Panel 3 tape along the entire length (height) of the strip in a continuous line and press down firmly, ensuring that the entire height of the slab will be in contact with the tape.

→ Do not remove the protective tape at this stage.



6. Treatment on Dekton® slab

→ Apply the same cleaning and priming procedure, but on the slab.

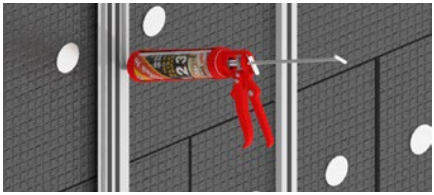


7. Applying the adhesive

→ Apply the SikaTack® Panel adhesive in the form of a triangular line using the triangular nozzle supplied, leaving a gap of at least 5 mm up to the double-sided tape and to the edge of the substructure profiles.

→ Installation time:

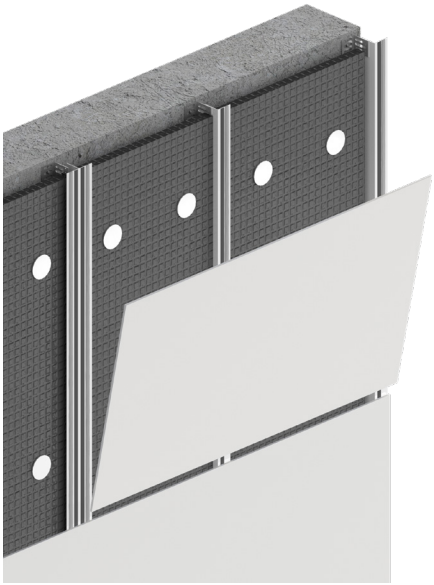
- SikaTack® Panel: < 30 minutes.



8. Removing the protective paper from the tape

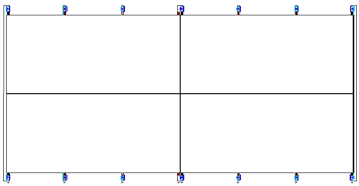
9. Laying the slab

→ Lay the slab in place and ensure that it is correctly positioned, as once it comes into contact with the tape, its position cannot be changed.

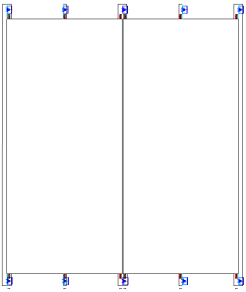


Placement patterns

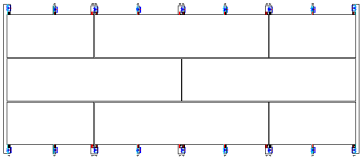
→ Straight pattern with horizontal cladding



→ Straight pattern with vertical cladding



→ Staggered pattern with horizontal cladding



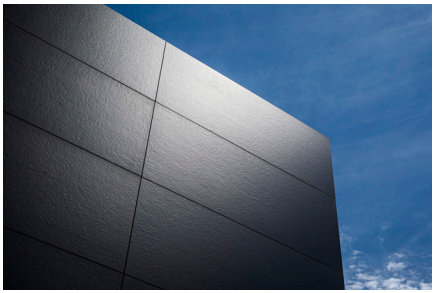
→ DKC system details.

System materials & accessories

Dekton® Protek by Cosentino® slab

Cosentino® supplies ultra-compact Dekton® slabs in various thicknesses (4, 8, 12 and 20 mm) with formats of up to 3,200 x 1,440 mm, reinforced on the back with a fiberglass mesh that improves the bending strength of the slab.

Its very low water absorption, resistance to unfavorable weather conditions, resistance to freezing and thawing and color stability over time make Dekton® an excellent solution for all types of facades.



Thickness	4 mm	8 mm	12 mm	20 mm
Weight	10 Kg/m²	21 Kg/m²	32 Kg/m²	52 Kg/m²

→ House in Sant Gregori (Girona, Spain) - Dekton® Sirius.

Design recommendations

→ The design and dimensions of the substructure depend on the construction conditions and the system used. The distances between the profiles of the substructure and their width are determined by the load they must support both by suction and by the weight of the Dekton® slab itself. The distances specified in this document are for information purposes only and shall be validated by the system provider.

→ Each project requires specific design detailing. The substructure must be designed by others in accordance with all relevant standards and appropriate design and manufacturing consideration.

→ Project-specific calculations and drawings must be issued by a qualified and competent person. Sika® is unable to provide or approve designs other than the specific interface between the cladding panels and the vertical substructure profile incorporating the SikaTack® Panel adhesive system.

→ The recommendations given in this manual are based on the calculations performed by Sika®.

→ The statements are given only as recommendations. For all projects it is mandatory to get into contact with local Sika® for further and specific design recommendations ans support for the correct application of the SikaTack® Panel Adhesive System.

Design recommendations for Dekton® 8 mm

Thickness	Orientation	Maximum distance between profiles	
		2 lines per profile	1 line per profile
8 mm	Vertical*	360 mm	Not applicable
	Vertical*	720 mm	360 mm
	Horizontal	457 mm	Not applicable
	Horizontal	800 mm	457 mm

→ (*) Sika® limits the maximum slab length in a vertical position to 2,800 mm. For slabs over 2,800 mm high, please contact Sika® for validation.

Design recommendations for Dekton® 4 mm (with mesh)

Thickness	Orientation	Maximum distance between profiles	
		2 lines per profile	1 line per profile
4 mm	Vertical*	700 mm	360 mm
	Vertical*	Not tested	480 mm
	Horizontal	700 mm	457 mm
	Horizontal	Not tested	640 mm

→ (*) Sika® limits the maximum slab length in a vertical position to 2,800 mm. For slabs over 2,800 mm high, please contact Sika® for validation.

The recommendations given in this manual are based on adhesive strength calculations performed by Sika® and on the strength of the slab.

Cosentino® recommends checking the local regulations in force to ensure that the appropriate reduction factors are being applied for each project. In the absence of applicable regulations, consult the *Facades Technical Department* of Cosentino® for the recommended minimum safety coefficient.

Legal notices

→ The information and advice in this document is given in good faith, based on Cosentino®/Sika®'s current knowledge and experience with the products when they are stored, handled and applied correctly, in normal situations and in accordance with the manufacturer's recommendations.

→ The information applies only to the application(s) and product(s) expressly mentioned.

→ In case of changes in application parameters, e.g. changes in substrates, or a different application, consult the manufacturer's *Technical Support* before using the products.

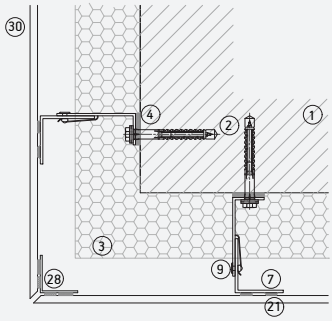
→ The information contained in this document does not release the user from the obligation to test the products for the intended application and purpose.

→ Orders are accepted in accordance with the provisions of our current *Terms and Conditions of Sale and Delivery*. Users should be aware of and use the latest updated version of the relevant *Product Data Sheet*, copies of which will be sent to those who request them.

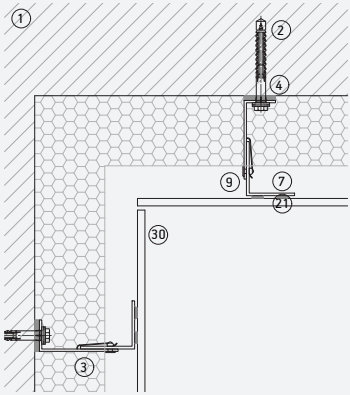
DKC system details

DKC horizontal section

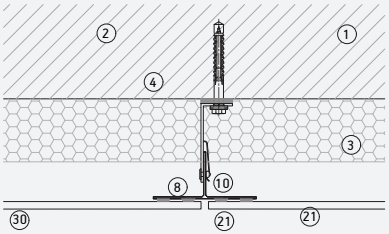
→ Exterior beveled corner



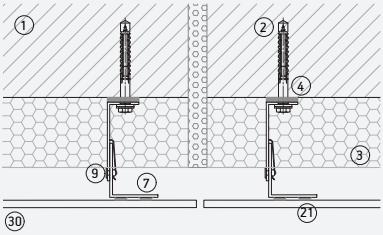
→ Interior corner



→ Vertical joint



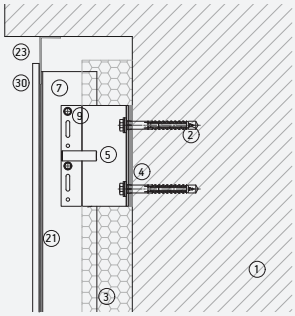
→ Vertical expansion joint



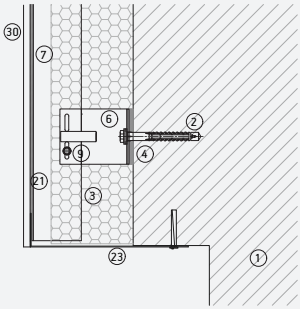
1. Supporting wall.
2. Anchor bracket.
3. Insulation.
4. Insulating layer.
5. Fixed bracket.
6. Adjustable bracket.
7. L-shaped profile.
8. T-shaped profile.
9. Self tapping screw.
10. Rivet.
11. Undercut anchor.
12. Horizontal rail.
13. C-shaped hanger.
14. Adjustable C-shaped hanger.
15. Bottom/top edge profile/clip.
16. Intermediate edge profile/clip.
17. Bottom/top visible clip.
18. Intermediate visible clip.
19. Interior back clip.
20. Exterior back profile.
21. Chemical fixing system.
22. Security fixing.
23. Ventilation profile.
24. Lintel.
25. Jamb.
26. Window sill.
27. Top coping.
28. Corner profile.
29. Bonding adhesive.
30. Dekton® Protek.

DKC vertical section

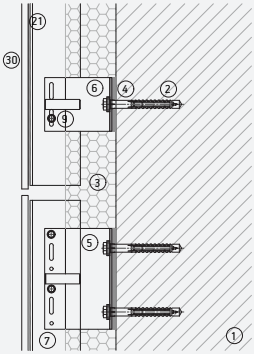
→ Upper detail



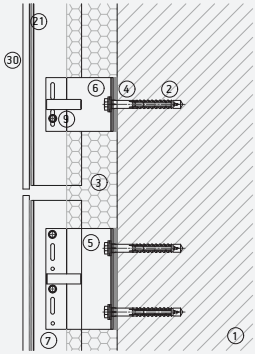
→ Bottom detail



→ Horizontal joint



→ Joint between profiles



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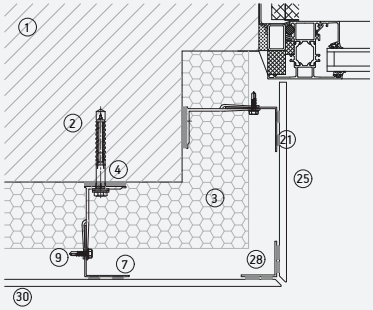
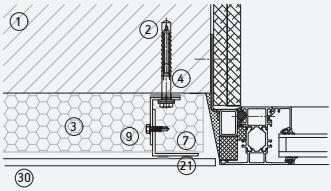
DKC sections

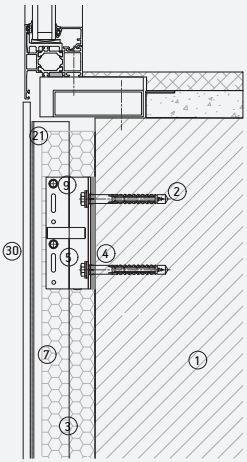
→ Dekton® jamb



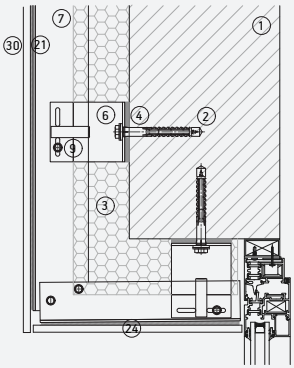
→ Window section without jambs



→ Window without sill



→ Dekton® lintel



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30. Dekton® Protek.

Health & safety

Risks associated with handling and transport

Operators and fitters dealing with Dekton® materials, must comply with all applicable occupational health and safety laws and regulations.

During transport and handling of Dekton® materials, risks such as bumps, cuts, musculoskeletal disorders, entrapment or blast injuries can occur due to incorrect handling.

Always take the necessary occupational safety measures to meet the requirements of local regulations. This *Manual* is not an exhaustive document or a substitute for the relevant laws and regulations, and is provided for information purposes only. Safety measures will depend on the specific conditions of each job.

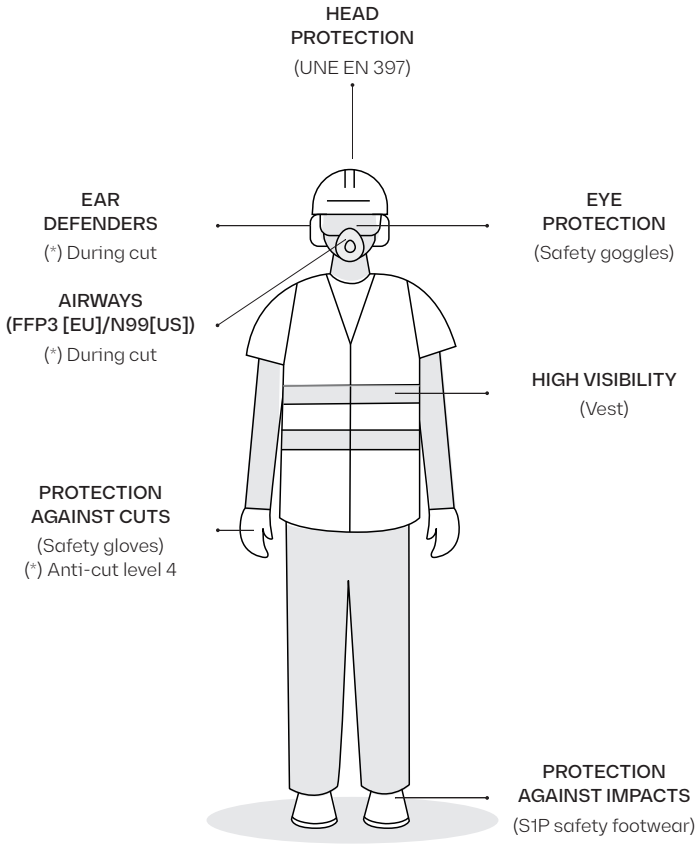
Please also refer to product *Safety Data Sheets* and *Good Practice Guidelines* which are available on the website *osh.cosentino.com*, or request such documents from the distributor or manufacturer.

Risks associated with manufacturing and transformation

The manufacturing process can involve risks such as cuts, blast injuries, entrapment, exposure to high noise levels and exposure to chemicals such as free crystalline silica dust.

For more information about these risks and measures to prevent them, please refer to the *Safety Data Sheets* as well as the *Good Practice Guidelines* that Cosentino® has published.

If you do not have this information, please ask your supplier.


HEAD
PROTECTION
(UNE EN 397)
EAR
DEFENDERS
(*) During cut
EYE
PROTECTION
(Safety goggles)
AIRWAYS
(FFP3 [EU]/N99[US])
(*) During cut
HIGH VISIBILITY
(Vest)
PROTECTION
AGAINST CUTS
(Safety gloves)
(*) Anti-cut level 4
PROTECTION
AGAINST IMPACTS
(S1P safety footwear)

COSENTINO®

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