Construction

Exposed Roofs with Sika® Single Ply Membranes, bonded

New Construction and Refurbishment

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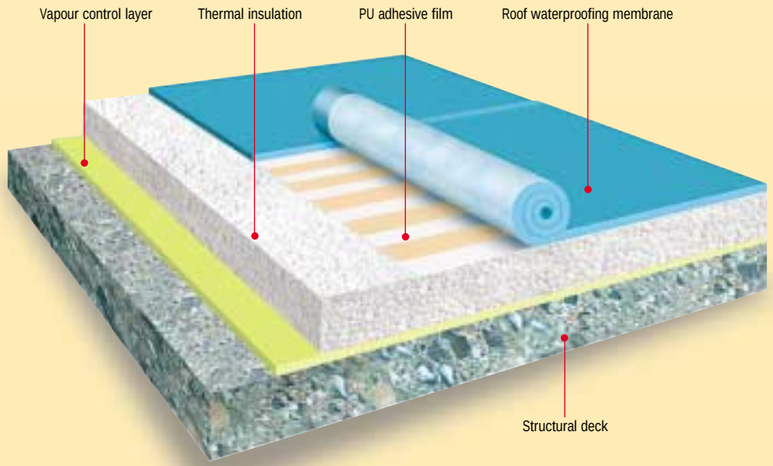
Partially bonded System for New Construction and Refurbishment

Exposed roofs of lightweight new structures which are not suitable for mechanical fixings, where perforation of the concrete deck may not be possible, are waterproofed with Trocal® SGK. The roofing sheet membrane is partially bonded to the substrate or the thermal insulation by a Sika one-component rapid-curing bonded polyurethane adhesive. During refurbishment, when additional thermal insulation has to be installed on an existing bitumen membrane, and the concrete deck cannot be perforated, Trocal® SGK provides the most efficient system to overlay the roof.

Trocal® SGK
- Produced by calendering the sheet and then laminating to the backing fleece
- Two-layer PVC waterproofing membrane of 1.5 mm thickness
- 0.7 mm light grey, UV resistant top layer
- Intermediate glass non-woven inlay
- Low surface temperature build-up
- The membrane itself is not bitumen resistant, but it becomes so with the polyester fleece backing which also acts as the bonding layer for the liquid Sika PU adhesive



Application of Trocal® SGK

Restrained or Structural Substrate
Trocal® SGK can be bonded directly to the substrate or if there is an additional roof build-up such as insulation etc.; in this case, it must be sufficiently restrained or fully bonded to the structural deck. Each additional layer must be bonded more strongly to the layer below it than the membrane to its substrate, in order to transfer the wind loads directly to the structure. In refurbishment works the existing roof build-up must always be checked for integrity.

Membrane Installation
The 1C polyurethane adhesive Sika-Trocal® C 300 is applied directly to the substrate and spread to a uniform and continuous thin film. For controlled application the special Sika adhesive dispenser is used to control both adhesive consumption and distribution. The membrane is unrolled onto the adhesive film (no rollers are required) and has immediate grab, the lap joints are hot air or solvent welded.

Detailing
The roof structure and particularly the perimeters must be sealed against any lateral underflow of wind. A mechanically fixed metal bar or an alternative suitable edge design detail will provide “peel protection” for additional wind uplift security. For up-stands and detailing Sikaplan® G reinforced and Sikaplan® D homogeneous membranes are to be used with standard application techniques.

Trocal® SGK grey

Trocal® SGK slate grey

Carisma® CI/CIK

Sikaplan® 15 G grey

Sikaplan® Walkway red

Sikaplan® Walkway slate grey

Sikaplan® Protection

Sikaplan® Protection DIA

Technology and Experience

Sika’s Bonding Experience
The first bonded Sika membrane was introduced in 1968 and was based on hypalon resin polymer. It was successfully used on both concrete and timber substrates. In 1970 ECB polymer technology for roof waterproofing was introduced for bonded systems over bitumen. Based on these 20 years of experience with bonded roofs, Trocal® SGK using the Sika 1C polyurethane adhesive was developed in the early 1990s.

Appprovals
- ISO 9001:2000
- ISO 14001
- Responsible Care

UV Resistance
The symmetrical design of the top and bottom layer in Trocal® SGK roofing membrane sheets results in a top layer of at least 0.7 mm with outstanding resistance to UV light and ageing. Due to its standard light grey colour, which contributes to low surface temperature build-up in service, Trocal® SGK is suitable for warm climates with high UV exposure. The black coloured Carisma® CIK should generally only be used in temperate and cold climates.

Dimensional Stability
Trocal® SGK is designed with an intermediate non-woven glass inlay which results in a very smooth roof surface and a very high dimensional stability of the membrane. Carisma® CIK cannot provide these characteristics to the same extent due to its polyolefine base, which is more sensitive to temperature changes.

Fire & Cold Folding Resistance

Trocal® SGK is self-extinguishing in fire and does not spread burning droplets. Additionally, the low ignition and low fire loading of the membrane provides excellent performance characteristics in the event of a fire. Carisma® CIK is also certified for roof refurbishment applications in Scandinavia.

Trocal® SGK Approvals
- Germany: DIN 4102 part 1-B2
- Germany: DIN 4102 part 7-ABP
- Switzerland: SIA 183/2-Class 5.2
- France: NF P52 501-M3

Carisma® CIK
- UK: BS 476, part 3:1958-FAC
- Scandinavia: NT Fire 006-Class T for refurbishment
- Opotnue and other certification

Foldability at cold Temperatures
- Trocal® SGK:
  – 40 °C without cracks
- Carisma® CIK:
  – 50 °C without cracks

Sika-Trocal® C 300 Adhesive

Adhesive for Surface Bonding
- 1C polyurethane resin-based rapid-curing adhesive
- Easy dispensing
- Special properties to reactivate old bitumen surfaces
- Excellent adhesion to the majority of common substrates
- Low viscous and uniform adhesive film results in excellent wetting of the polyester backing fleece
- Controlled curing characteristics for smooth membrane surfaces
- Fast curing for immediate wind uplift security
- Special Sika dispenser available for fast application over large areas

Adhesion Approvals
UEAtc wind uplift test available for:
- Timber
- Bitumen
- Expanded polystyrene insulation
- PUR board insulation

Application and Design

Wind Load Calculation
Design of Bonding Applications
- According to local building regulations
- Based on UEAtc General Guidelines for Wind Load Design
- Confirmed substrate strength and adhesive performance
- Individual design loads for specific substrates
- Application specifications by numbers of strips, or by continuous adhesive film

Sika MISTRAL
- Sika’s own MISTRAL software can provide a full service for planning, design and installation of the roof waterproofing system, based on the specific project data and the local building regulations. This system uses the latest wind load technology to generate the optimum design solution and the most appropriate installation method statement.

Specialities

Carisma® CIK
- Extruded black ECB compound
- UV resistant design for exposed roofs
- Intermediate glass non-woven inlay
- Polyester backing fleece for bonding
- Membrane is bitumen resistant
- Outstanding chemical resistance
- Outstanding cold temperature performance

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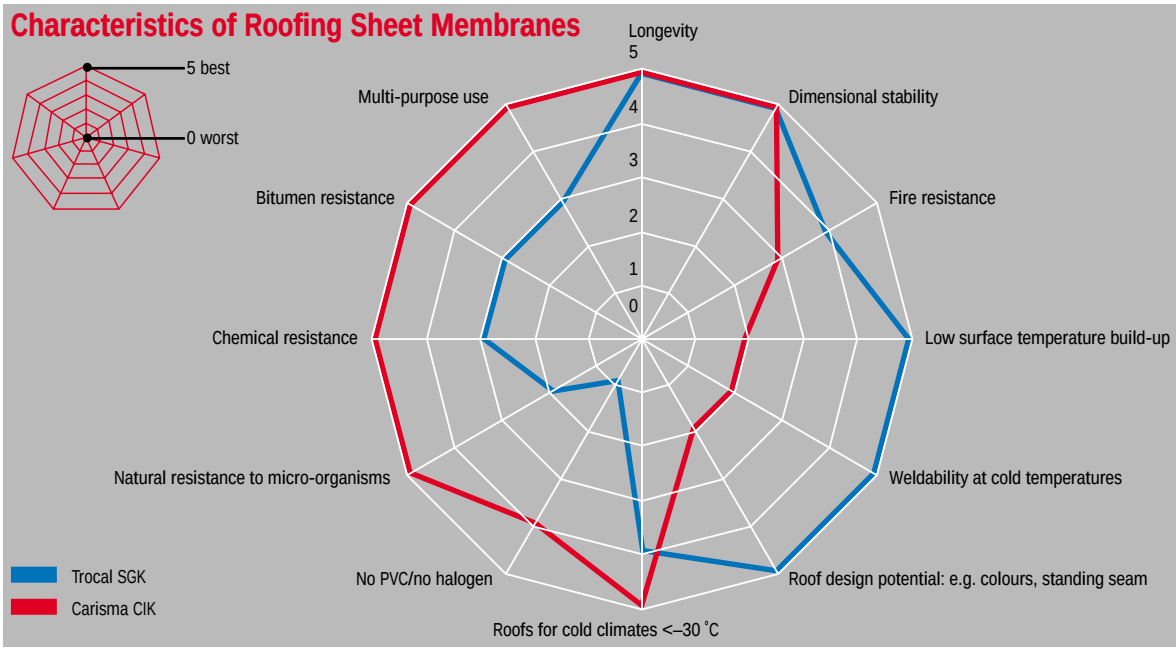
Characteristics of Roofing Sheet Membranes



Accessories for Installation

For Trocal® SGK Membrane		For Roof Build-up
Sikaplan® 15 G straps for butt joint covering	Sika-Trocal® CV 705/733 thinner for contact adhesive	Sikaplan® protective layer for protection of the waterproofing membrane
Sikaplan® 18 D homogeneous sheet for detailing	Sika-Trocal® Cleaner 2000 cleaner for hot air welding seam overlaps	Sikaplan® Walkway for protection and demarcation of service walkways
Sikaplan® prefabricated corners, angles and pipe flashing for detailing	Sika-Trocal® Cleaner L100 cleaner for cold welding seam overlaps	Sika-Trocal® SE profiles for creating the aesthetic effect of standing seams on inclined roofs
Sika-Trocal® laminated metal sheet type S, type D for terminations and junctions	Sika-Trocal® welding solvent for cold welding	
Sika-Trocal® C 733 contact adhesive for up-stands and roof light terminations	Sika-Trocal® liquid PVC: PVC solution to seal welded seam overlaps	

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