

# Sika Limited

## **Sika-Trocal Roofing Division**

Guidance Notes for Specifiers using RIBA NBS J42 - June 2005 (Rev A 2006)  
for Single Layer Polymeric Sheet Roof Covering

Relating to

## **Sika-Trocal Type SGmA**

Intended to be used solely as a loose laid, ballasted roof waterproofing membrane.

### Notes:

- 1) The text in black is the original wording of the NBS and all appropriate clauses have been included.
- 2) The text in green is either notes or alternative specifications and should be deleted in your final draft.
- 3) The text in red is the specification for our membranes and associated products and should to be changed to black in your final draft.
- 4) Whilst these guidance notes are comprehensive, you are strongly advised to consult your local Sika-Trocal Area Sales Manager for technical advice and guidance on completion of these specification clauses, particularly in relation to any updates.
- 5) These guidance notes should always be read along with the RIBA NBS J42 own notes and the current Sika-Trocal application manual.
- 6) J42 does not encompass all possible applications, details, uses or circumstances. In cases where the specification falls outside the strict parameters of J42, please contact your local Sika-Trocal Area Sales Manager for further guidance.
- 7) J42 does not specify the structural deck in detail, nor does it deal with roof falls. These points have to be addressed elsewhere.
- 8) J42 does not specify the use of Lightning Protection scheme in accordance with BS EN 62305:2006 parts 1-4. This should however be taken into consideration.
- 9) Please seek advice regarding the appropriate roof membrane thickness for specific Guarantee Periods.

The information contained herein and any other advice are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. The information only applies to the application(s) and product(s) expressly referred to herein and is based on laboratory tests which do not replace practical tests. In case of changes in the parameters of the application, such as changes in substrates etc., or in case of a different application, consult Sika's Technical Service prior to using Sika products. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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Sika-Trocal SGmA

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**TYPES OF COVERING**

**110 WARM ROOF COVERING ..... Insert, eg TO OFFICE BLOCK**

- Substrate *enter ... as selected, but could be:* metal deck, plywood, OSB/3, timber, wood wool slabs, aerated concrete panels, in situ concrete, pre-cast concrete, sand/cement screed, etc.
  - Preparation: **NB despite NBS notes, rarely required with Sika-Trocal for new build.**
- Roof covering:
  - Manufacturer: **Sika-Trocal, Sika Limited, Watchmead, Welwyn Garden City, Hertfordshire AL7 1BQ. Tel: 01707 394444**
  - Lower protective layer: (Loose laid): **NB despite NBS notes, rarely required.**
  - Vapour control layer. **Type to be determined by calculation as clause 220, Sika-Trocal S-Vap 500E or an alternative manufacturer if indicated by calculation.**  
**Concrete decks will always require a vapour control layer.**  
**Do not select a higher performance of VCL than required by calculation,**
  - Insulation: **refer to performance requirements using clause 230 and generic types using clauses 410 to 430.**
  - Waterproofing membrane: **Sika-Trocal Type SGmA, rot-proof plasticised PVC, including a restraint matrix of random glass fibres and anti-bacterial agents, manufactured in accordance with DIN 16734 with current Agrément Certificate issued by BBA. Properties must meet or exceed the following: Tensile strength 11.0N/mm<sup>2</sup>. Elongation at break 250%. Crack-free low temperature fold -35 deg C. Perforation resistance drop height, no penetration at 300mm. Density 1,250Kg/m<sup>3</sup> and vapour diffusion resistance 30µL metres.**  
**Thickness: 1.5mm or also available 2mm**

**Colour: Beige**

  - Upper protective layer (loose laid) **Sika-Trocal Type T non-woven needle punched polyester fleece, 300 g/m<sup>2</sup> or Sika-Trocal SBv PVC skinned polyester fleece.**  
**NB Mainly type T but occasionally type SBv - refer to Sika-Trocal for guidance.**
- Surface protection: **Stone ballast as clause 460 and or paving slabs as clause 465.**
- Accessories: **edge trims as clauses 340 and 765. Pre-formed membrane corners.**

## PERFORMANCE

### 210 ROOF PERFORMANCE

- **General: Secure, free draining and completely watertight.**  
**Use operatives trained in the application of Sika-Trocal membranes and who have attended the Sika-Trocal training course at the Sika Training Academy, Welwyn Garden City, accreditation number ZZRF/18198. Submit evidence of training, a photo-identificard issued by Sika-Limited, to Contract Administrator on request. Maintain a minimum of one fully trained operative per gang on site throughout the Sika-Trocal installation period.**

### 220 VAPOUR CONTROL LAYER

- **Requirement: Determine interstitial condensation risk of roof as recommended in BS 6229. Modify calculation method to conform to BS 5250.**
- **Basic design data:**
  - **Outdoor notional psychrometric conditions, winter:**  
Temperature: - 5°C  
Relative humidity: 90%  
Vapour pressure: 0.36 kPa.  
Duration: 60 days.
  - **Outdoor notional psychrometric conditions, summer:**  
Temperature: 18°C  
Relative humidity: 65%  
Vapour pressure: 1.34 kPa  
Duration: 60 days
  - **Indoor notional psychrometric conditions:**  
Temperature .....
  - Relative humidity .....
  - Vapour pressure .....
- **Winter interstitial condensate:**
  - **Calculated amount (maximum) 0.35kg/m<sup>2</sup>**
  - **Calculated annual net retention: Nil**
- **Vapour control layer: if calculated amounts of condensate exceed allowed amounts, provide a suitable membrane or sealed deck so that damage and nuisance from interstitial condensation do not occur.**

**NB This information should normally be available from the Services Engineers.**

**The maximum amount of retained condensate permitted can vary according to the type of insulation and this should be ascertained from the relevant board manufacturer.**

**Condensation risk analysis can usually be undertaken by any reputable insulation manufacturer.**

**There is no virtue in specifying a VCL of higher performance than that required, nor in having a VCL where none is required.**

## 230 INSULATION

- Requirement: Determine type and thickness of insulation and integral (**facing**) or separate overlay to satisfy the following criteria:
  - Thermal transmittance of roof (maximum): .....  $W/m^2K$
  - Compressive strength of insulation (minimum) at 10% compression plastic foam 150 kPa, mineral wool 'Dual Density' 60 kPa.
  - Finished substrate: Suitably even, stable and robust to receive the covering
  - Insulation compliance: To a relevant British Standard, or Agrément certified.

## 240 ATTACHMENT: **Sika-Trocal Type SGmA membrane.**

- Requirements: Determine methods of attachment to resist wind loads. Provide for relative movement of materials and effects of vapour pressure. Do not reduce performance of vapour control layer.
- Wind loads: Calculate to BS 6399-2, Standard Method.
  - Basic wind speed ( $V_b$ ): .....m/s
  - Altitude factor ( $S_a$ ) .....
  - Direction factor ( $S_d$ ) .....
  - Seasonal factor ( $S_s$ ): 1.
  - Probability factor ( $S_p$ ): 1.
  - Terrain and building factor ( $S_b$ ) .....
  - Size effect factor ( $C_a$ ): 1.
  - External pressure coefficients ( $C_{pe}$ ): .....
  - Internal pressure coefficients ( $C_{pi}$ ) .....

**NB** The values above should be available from the Structural Engineers, they will have already used them in the general design of the building.

## PRODUCTS

### 340 PREFORMED SLEEVES, TRIMS, ETC

- Type: **0.6 mm galvanised steel with 0.8 mm homogenous membrane laminated to it.**
- Manufacturer: **Sika-Trocal**
  - Product reference: **Sika-Trocal Metal**
- Colour: **Light Grey or Slate Grey**
- Size (minimum): **refer to details**

### 355 MECHANICAL FASTENING, WASHERS, PRESSURE PLATES, ETC

- Type: **As appropriate**
- Manufacturer: **Fixing manufacturers, SFS Stadler, Olympic International.**
  - Product reference: **As appropriate**

### 395 VAPOUR CONTROL LAYER

- Type: **Polyethylene**
- Manufacturer: **Sika-Trocal**
- Product reference: **S-Vap 500E**
- Thickness: **0.15mm**
- Vapour resistance: **576 MN s/g**

**NB** Should calculations indicate that an alternative to S-Vap 500E is required insert:

- *Type: As recommended by Manufacturer*
- *Manufacturer: TBC*
- *Product type: TBC*
- *Thickness: TBC*
- *Vapour resistance: TBC*

### 410, 415, 420, 425, 427 AND 430 WARM DECK INSULATIONS

**NB** These clauses are specific to generic types of insulation - select appropriate one. Where asked to specify the thickness, it is safer to refer to 'U' value given in clause 230; thickness alone is not a reliable guide to insulation value.

### 460 STONE BALLAST

- Type: Washed, rounded aggregate.
- Supplier: **If special requirement**
- Size: Graded 20-40 mm, free from fines and sharps **depth min 50mm**
- Colour: **If special requirement**

### 465 PRECAST CONCRETE PAVING SLABS

- Precast concrete: To BS 7263-1 hydraulically pressed.
- Type: .....
- Manufacturer: .....
  - Product reference: .....
- Colour/Finish: .....
- Size : ..... **X50mm**
- Support system: .....

## EXECUTION GENERALLY

### 510 ADVERSE WEATHER

- **General: The membrane must not be laid in wet conditions. If the temperature drops below 5°C follow manufacturer's special procedures to continue installation.**
- **Unfinished areas of the roof: Keep dry and protect edges of laid membrane from wind action.**

## 520 INCOMPLETE WORK

- End of working day: Provide temporary seal to prevent water infiltration.
- On resumption of work: Cut away tail of membrane from completed area and remove from roof.

## SUBSTRATES/VAPOUR CONTROL LAYERS/WARM ROOF INSULATION

### 610 SUITABILITY OF SUBSTRATE

- Surfaces to be covered: Firmly fixed, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete including grading to falls and formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints and fixing of battens, fillets, anchoring plugs/strips, etc).
- Moisture content and stability of substrate: Must not impair integrity of roof.

### 670 LAYING VAPOUR CONTROL LAYER

- Laying: Sheets loose, flat and without wrinkles
- Side and head laps: Seal using materials and method recommended by membrane manufacturer.
- Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

### 680 INSTALLING WARM ROOF INSULATION

- Setting out:
  - Long edges: Fully supported and at right angles to **troughs of metal decking.**
  - End edges: Adequately supported.
  - Joints: Butted together.
  - End joints: Stagger.
- Mechanical fixings: **In accordance with insulation board manufacturer's recommendations.**
- Completion: Boards must be in good condition, well fitting and firmly fixed.

## WATERPROOF COVERINGS/ACCESSORIES

### 730 WELDED JOINTING

- Laying: Loose lay, do not wrinkle or stretch.
- Side and end joints:
  - Laps (minimum): **50mm**
  - Preparation: Clean and dry surfaces for full width of joint.
  - Sealing: Weld together.
- Condition at completion: Fully sealed, smooth, weathertight and free draining.
- Accessories: **Even bead of liquid PVC.**

## 765 PERIMETER DETAILS

- Upstands, edge trims, drips, kerbs, etc: Secure preformed metal sections to roof structure with mechanical fasteners.
- Roof membrane: Dress over perimeter profile. Overlap beyond fasteners (minimum) **30mm**.
  - Sealing: weld together.
- Accessories: **Even bead of liquid PVC.**

## 780 ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

- Roof membrane: Cut around penetrations
- **Form sleeve with base flange out of either laminated metal or rigid PVC and fit around penetration. Base flange to be securely fastened to deck.**
- **Weld membrane to base flange with minimum overlap of 50mm and 30mm beyond fastener.**
- Protect to top edge of sleeve: Flashing or weathering cravat **fixed to the penetration itself.**

## SURFACING

### 820 LAYING STONE BALLAST

- Condition of substrate: Clean
- Ballast application: Spread evenly. Do not pile to excessive heights.
  - Depth (minimum): **50mm (20-40mm size)**
- Previously laid materials: Protect during spreading of ballast.
- Gravel guards: Fit to outlets.

### 840 LAYING PRECAST CONCRETE PAVING SLABS

- Condition of substrate: Clean
- Setting out: Minimise cutting.
- Joints: Open.
  - Width .....
  - **Thickness: Minimum 50mm**
- Perimeter/Upstand margins: .....

## COMPLETION

### 910 INSPECTION

- Interim and final roof inspections: **Sika-Trocal Licensed Contractor is to ensure that the roof is monitored by Sika-Trocal engineer.**

## 920 ELECTRONIC ROOF INTEGRITY TEST

- Testing authority: **Insert name of independent specialist company**
- Timing of test: **To be agreed**
- Condition of roof prior to testing:
- Waterproof membrane complete to a stage where integrity can be tested.
- Surface: Clean.
- Test results and waterproof integrity certificate: Submit on completion of testing.

**NB Electronic testing is an option, not an essential part of the contract. It is normally a reliable way of tracing or eliminating problems. It can prove that the problems lie elsewhere other than the roof.**

## 930 FLOOD TESTING

**NB Not recommended method unless electronic testing cannot be carried out. If flood testing is carried out, due precautions are required, ie can structure take extra load? Will upstands be overrun? Etc.**

## 940 COMPLETION

- Roof areas: Clean
  - Outlets: Clear
- Work necessary to provide a weathertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed membrane: Do not damage. Protect against damage from traffic and adjacent or high level working.