



RESTORATION – CONSERVATION HERITAGE BUILDING AND ANCIENT TEMPLES

SIKA MYANMAR LIMITED

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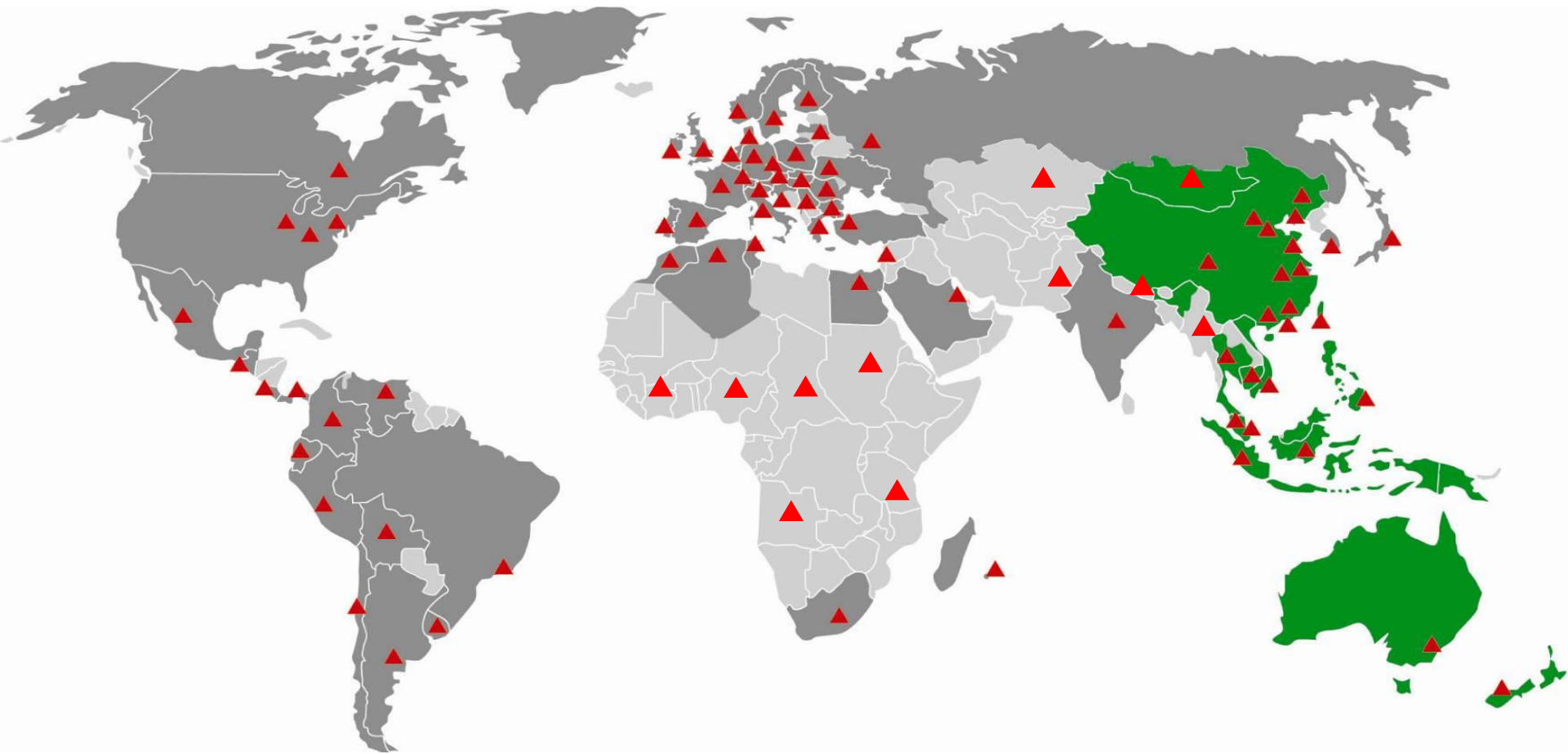
DIRECTOR

BUILDING TRUST





Sika Group, Switzerland – Leader in Construction Chemicals



Sika Group – Global Presence

**A network of 121 Manufacturing and Marketing Units,
17.000 people in 5 continents and more than 100 countries...**

**Headquarter: Baar/Switzerland
Total net sales 2017: USD 6.5 bln**

Over 100 years Sika - A Century of Innovation

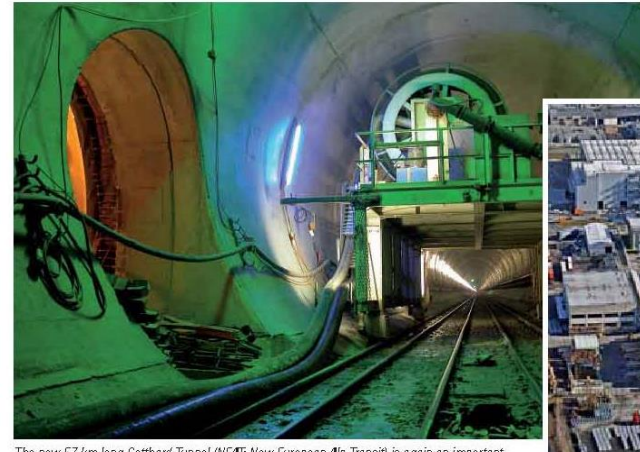


1910



Kaspar Winkler invents "Sika" (Sika®-1), a substance which when added to mortar makes it waterproof.

First Sika factory in the Neugasse 99 in a neighborhood very close to Zurich's main railway station.



2010



The new 57 km long Gotthard Tunnel (NEAT: New European Alp Transit) is again an important project for Sika. Although Sika-1 is still part of our product range, today a whole range of much more advanced products are being used.

Investment in the new PU manufacturing plant (Kapaflex) in Düringen (Switzerland).



Sika Business

Construction Division

Industry Division



**Concrete
Business**



**Contractor
Business**



**Distribution
Business**



**Industry
Business**

SIKA MYANMAR LIMITED

100% FOREIGNER INVESTMENT



Factory Yangon

Factory 2000 m²

Total Area 4500 m²

Liquid Production

Total capacity of 8750 ton

SIKA MYANMAR LIMITED FACTORY



PROBLEMS ON HERITAGE BUILDINGS AND ANCIENT TEMPLES



- Structural Damage
- Structural damage due to demineralization
- Water penetrating into the structure through tapered roof or exposed walking platforms
- Upward movement of moisture through permeable building materials by capillary action
- Unprotected masonry is susceptible to natural rising damp
- Use of construction materials not suitable for restoration/conservation
Limestone aggregates and air entraining materials should be used

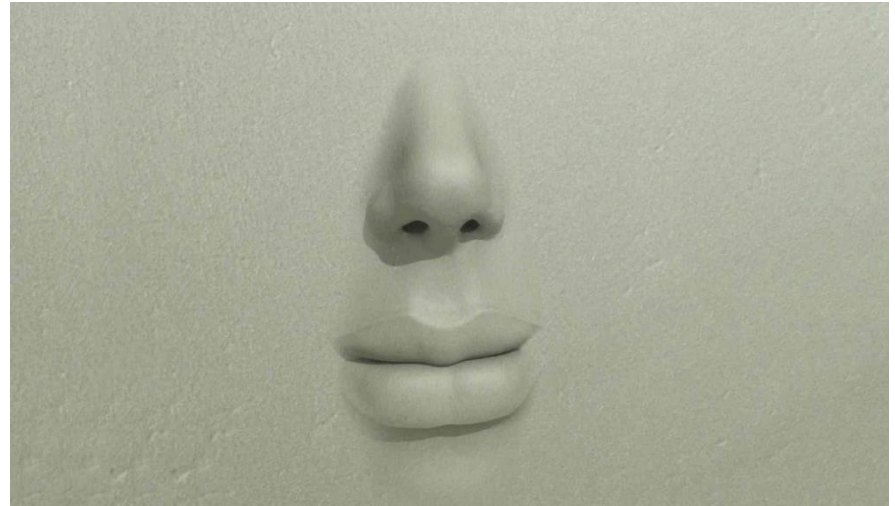
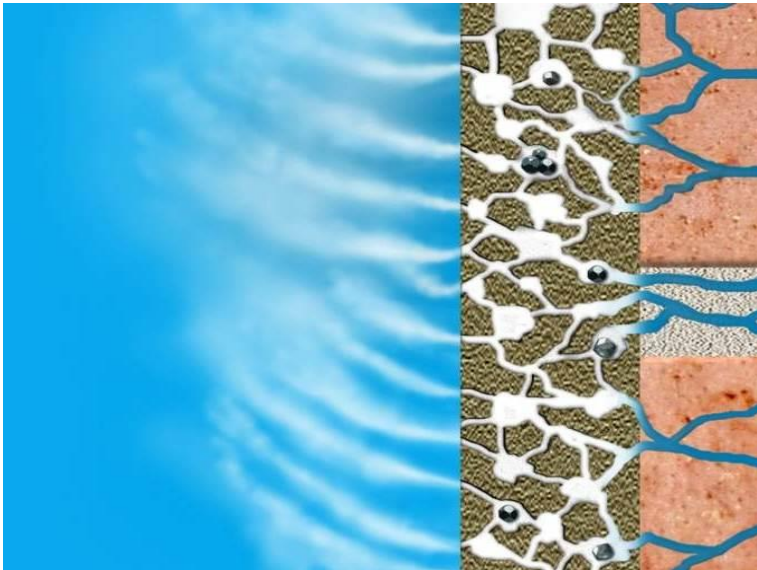
PROBLEMS ON HERITAGE BUILDINGS AND ANCIENT TEMPLES



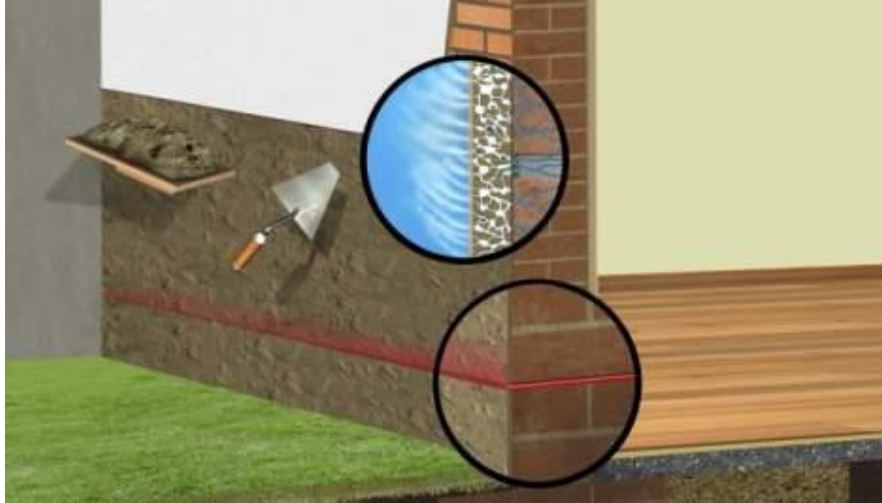
- Can disrupt the strongest materials and lead to the slow but complete loss of stones and bricks
- Aesthetic issue
- Allergies and respiratory problems (Mold and bugs)
- **Total loss of property**

SIKA'S SOLUTIONS ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

SikaMur® SYSTEM
LET YOUR WALL BREATHE!



4 SikaMur® SYSTEM SOLUTION



SikaMur® SYSTEM

- Controls the further vertical migration of moisture from the ground

PRODUCTS:

- SikaMur® InjectoCream-100
- SikaMur® Dry
- SikaMur® Finish

4.1 SikaMur® InjectoCream-100

DESCRIPTION

SILANE BASED INJECTABLE DAMP-PROOF COURSE (DPC) FOR RISING DAMP TREATMENT

USE

- In almost all types of masonry walls
- Inside and outside application
- Solid brick walls
- Cavity walls

CHARACTERISTICS

- Easy to apply by caulking gun
- Water repellent
- Highly effective
- Water based, solvent-free, non-flammable



4.1 SikaMur® InjectoCream-100

APPLICATION



REMOVE

- Remove skirting boards and/or render/plaster to identify and expose the original masonry and the appropriate mortar course to be treated



DRILL HOLES

- Drill 12 mm diameter holes at horizontal center no greater than 120 mm apart
- The depth of the holes depends on the various wall thicknesses



CLEAN

- After drilling, each individual hole needs to be thoroughly cleaned
- Most suitable by a clean compressed dry air blower



INJECTION

- Insert SikaMur® InjectoCream-100 by using an application gun
- Fill in the full depth of the pre-drilled hole

4.2 SikaMur® Dry

DESCRIPTION

READY-MIX MORTAR FOR REHABILITATING MOIST MASONRY

USE

- Damp and salt damaged walls
- Plinths and basement wall areas
- Interior and exterior masonry walls
- Masonry walls of historic buildings and structures such as vaults (for the preservation of ancient monuments)

CHARACTERISTICS

- Evaporation of retained moisture
- Holding salts inside plaster, elimination of laitance and mildew
- Good elastic properties, adaptable to masonry structure



4.2 SikaMur® Dry

APPLICATION



MIXING

- Mix the required quantity according to the local product data sheet



MASH-PATTERN

- Apply two layers: First the adhesion layer, afterwards the rendering layer



DRY

- Smooth the surface with a wooden trowel and let it dry



PROTECT

- Newly applied areas must be protected and prevented from drying out too quickly (i.e. sunlight, wind etc.)

4.3 SikaMur® Finish

DESCRIPTION

HIGH VAPOUR DIFFUSION FINISHING PLASTER COAT

USE

- Damp and salt damaged walls
- Plinths and basement wall areas
- For finishing of cement and lime based renders
- Surface finishing of masonry walls of historic buildings and structures such as vaults

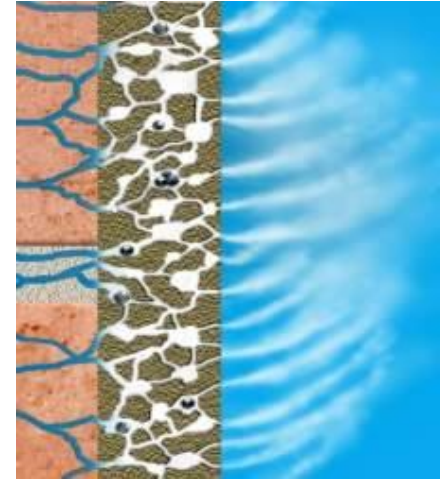
CHARACTERISTICS

- Highly breathable layer
- Large pore volume to accommodate salt deposition
- High water vapour diffusion capability



4.3 SikaMur® Finish

APPLICATION



APPLICATION

- Apply SikaMur®
Finish by using a flat trowel for a smooth finishing layer

FINSIH

- Let it dry

COLORATION

- Paint with a color which has a high water vapour diffusion capability e.g. SikaMur® Color I or E

RESULT

- Long lasting effect against rising damp

SIKAMUR®

SYSTEM COMPONENTS

SIKAMUR® SYSTEM DAMP WALL REHABILITATION SYSTEM

- SikaMur InjectoCream-100 Silane-based injectable damp proof course for rising damp treatment
- SikaMur Grout+ Ready-to-use pourable mortar for gap filling and wall reinforcement
- SikaMur Dry Highly breathable, ready-mixed mortar for rehabilitating moist masonry
- SikaMur 1000 SP Highly breathable, ready-mixed sprayable mortar for rehabilitating moist masonry
- SikaMur Finish Cement-free, ready to mix finishing layer for rehabilitating moist masonry
- SikaMur Color E / I Lime based coloured paint , with high water vapour diffusion capability



5 BENEFITS

FOR WORKERS

- Ready- mix mortars
- Excellent workability
- All products from one supplier

FOR OWNERS

- Complete system from one supplier
- Proven technology
- Profit from Sika's expertise and know-how
- Durability: Long lasting effective solution
- No loss of property value
- Physically intact structure

Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Sika Strengthening Systems

- Sika CarboDur System (CFRP Plates)



- Sika WRAP System
(Composite Fabrics for Structural and Seismic Strengthening)



Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Application – Demonstration:



Here we have simulated flexural behavior between a system as the currently used and as per Sika Strengthening system

The span was 1,45 m

Here simulation of current system.

The bricks ‘strip’ represents the structure and is laid onto a hollow metal profile

Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Application – Demonstration:



In order to load the system, we have used bag of cement (50 kg)

The current design has developed a crack just after having placed the second bag.

Crack at 100 kg load !

Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Application – Demonstration:



Crack crossed the entire section



Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Application – Demonstration:



With SikaWrap[®] 230 (carbon fabric) bonded and impregnated with Sikadur[®] 330, the system has been able to bear the weight of 10 bags (500 kg)

No cracks with 500 kg load !!

Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

Application – Demonstration:



A second tentative by placing first the bags side by side and an extra human weight (closed to 100 kg) have been carried out.

No cracks with 600 kg load !!!!.

Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

TEXTILE REINFORCED MORTAR SYSTEM (TRM) FOR MASONRY STRUCTURES

The system is an interesting, versatile and easy option for masonry strengthening against seismic load. It consists of the two main components Sika MonoTop®-722 Mur and SikaWrap®-350 G Grid, and can optionally be anchored with SikaWrap® FX.

MAIN APPLICATION

- Strengthening the connection between masonry panels and concrete frames
- Improvement of seismic deformation capacity of masonry walls in earthquake zones
- Repair of cracked masonry walls

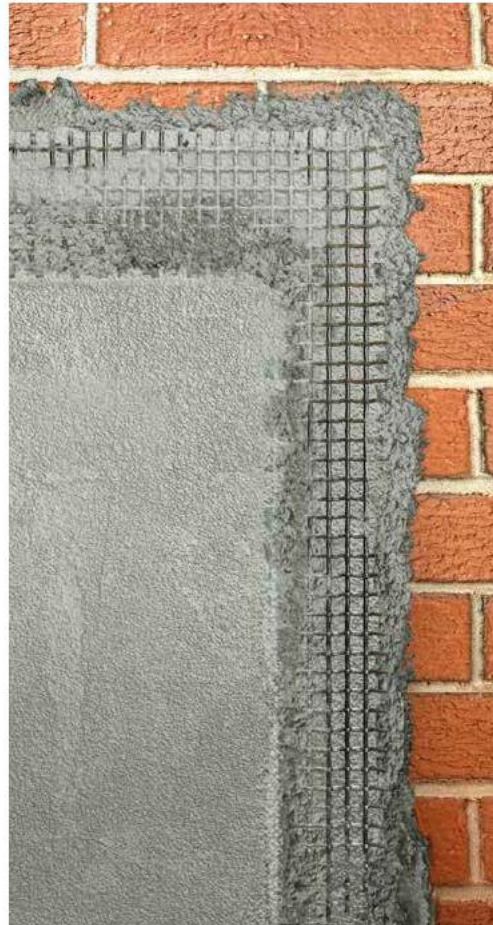
KEY ADVANTAGES

- Easy handling
- Excellent workability
- Mortar suitable for hand and spray application
- Good adhesion to brick, weak concrete or stone
- Strengthening of irregularly shaped structures



Sika MonoTop®-722 Mur

- One-component, fiber-reinforced mortar
- Low modulus of elasticity: excellent compatibility with different types of substrates
- High capacity for adhering to traditional substrates e.g. brick, natural stone and to concrete
- Excellent workability
- Thixotropic: suitable for overhead applications
- Hand and spray application possible.



SikaWrap®-350 Grid

- Glass fiber grid with alkali-resistant coating
- Excellent adhesion to mortar thanks to the SBR finish
- High tensile strength, in both directions of the grid
- Easy handling and cutting of soft grid; conventional cutter can be used



SikaWrap® FX

(optional)

- Carbon fiber connector for anchoring the TRM system to the facing walls
- Considerable performance increase of the TRM system



Sika Strengthening Systems ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

APPLICATION STEPS



Step 1: Mix Sika MonoTop®-722 Mur at low speed for 3-4 minutes to get a smooth mortar.



Step 2: Pre-wet substrate and apply 1st layer of Sika MonoTop®-722 Mur; approx. 5 mm thickness.



Step 3: Place SikaWrap®-350 G Grid, a special glass fiber strengthening grid.



Step 4: Apply 2nd layer of Sika MonoTop®-722 Mur - "wet-on-wet". Total layer thickness approx. 10 mm



Step 5: As soon as the mortar begins to set, it is possible to finish the surface layer with a sponge or metal trowel; according to aesthetic or overcoating needs.



Step 6 (optional): Put SikaWrap® FX connectors into hardened mortar, through the TRM system and masonry. Broadcast with sand prior to application of final coating.

Sika MonoTop®-722 Mur SikaWrap®-350 G Grid TEXTILE REINFORCED MORTAR SYSTEM (TRM)



Sika Strengthening Systems References ON HERITAGE BUILDINGS AND ANCIENT TEMPLES

RIALTO Bridge Venice



Sika Strengthening Systems References ON HERITAGE BUILDINGS AND ANCIENT TEMPLES



Your benefits with Sika in Myanmar

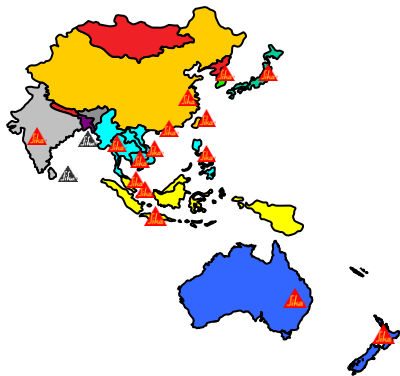
Global, Regional & Local Know How



Local Production



Local Development & Formulation



Global Expertise - Local Solutions





**Thank you
chei-zu tin-bar-te**

BUILDING TRUST

