



# SIKA AT WORK

## THE GRAND EGYPTIAN MUSEUM (GEM)

ROOFING : Sika COMBO Roofing System

Thermal insulation: Sika PU Spray Foam spray , Waterproofing & weathering resistant coating: Sikafill 100.

REFURBISHMENT : SikaWrap®-530 ,Sikadur®-300

Sikadur®-41 CF

SEALING & BONDING : Sikalfex®-1A , Sika® Backing Rod

INDUSTRY :SIKASIL®SG\_500 CN

BUILDING TRUST



# THE GRAND EGYPTIAN MUSEUM



## PROJECT PARTICIPANTS: "Refurbishment"

**Contractor:** BESIX ORASCOM  
**Specialized contractor:** Contra  
**Specialized consultant:** AACE (PROF. DR. AMR ABDEL-RAHMAN)  
**Main Consultant:** HILL - EHAF

## PROJECT PARTICIPANTS: "Roofing - Sealing & Bonding"

**Owner:** MINISTRY OF CULTURE OF EGYPT.  
**Main Contractor:** Orascom-BESIX  
**Consultant:** EHAF  
**Applicator:** ABUILD CO.

## PROJECT PARTICIPANTS: "Industry - Sealing & Bonding"

**Owner:** MINISTRY OF CULTURE OF EGYPT.  
**Main Contractor:** Orascom-BESIX  
**Consultant:** EHAF  
**Panels' installer:** ALURAL  
**Glass Manufacturer:** PROGLASS

For More Projects Information



[http://egy.sika.com/en/group/Publications/Sika\\_At\\_Work.html](http://egy.sika.com/en/group/Publications/Sika_At_Work.html)

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# THE GRAND EGYPTIAN MUSEUM

## “ROOFING”

### PROJECT DESCRIPTION

-The Museum is currently one of the largest archaeological development projects in the world. The museum acts as the intersection between modernity and antiquity given the global interest in Pharaonic history which goes back to over 5000 years of civilization that will focus on the history of Ancient Egypt from Prehistory to the Greco-Roman period.

The design of the museum resembles the pyramids and builds on the difference in level to create a structure that doesn't extend above the plateau and defined by visual axes extending from it towards the three pyramids, creating a new edge to the existing plateau.

The extraordinarily complex concrete structures with an extreme level of precision, so as to ensure the perfect alignment of the underside of the roof and its suspended ceilings consisting of cascading panels.

The building will display more than 100,000 exhibits and feature ancient Egyptian monuments and treasures.

The project is estimated to cost \$550m supported by UNESCO.

Location: Al-Remayah square- 2.5 KM away from the legendary pyramids of Giza- Egypt.

Opening: Part of the museum will open to visitors by 2019, with the final grand opening due in late 2020.

### Products Delivered:

Sika COMBO Roofing System

Thermal insulation: Sika PU Spray Foam spray.

Waterproofing & Weathering resistant coating: Sikafill 100

Facade Weathering protection Sikagard®-550w elastic white

### PROJECT REQUIREMENTS

- The design of the museum resembles the pyramids and builds on the difference in level to create a structure that doesn't extend above the plateau and defined by visual axes extending from it towards the three pyramids, creating a new edge to the existing plateau.

The museum replicates and modernises the triangular shape of the nearby pyramids. All the details of the complex are planned around its triangular structure.

The extraordinarily complex concrete structures with an extreme level of precision, so as to ensure the perfect alignment of the underside of the roof and its suspended ceilings consisting of cascading panels.

### Sika Solution:

#### Roofing solution:

The required Roofing system should consider a durable and ultra-precise Waterproofing system that respects and does not veil the shape of the exceptional architectural roof design as well as a superior thermal Insulation system according to the special thermal resistance value requested by the designer.

#### Facades solution:

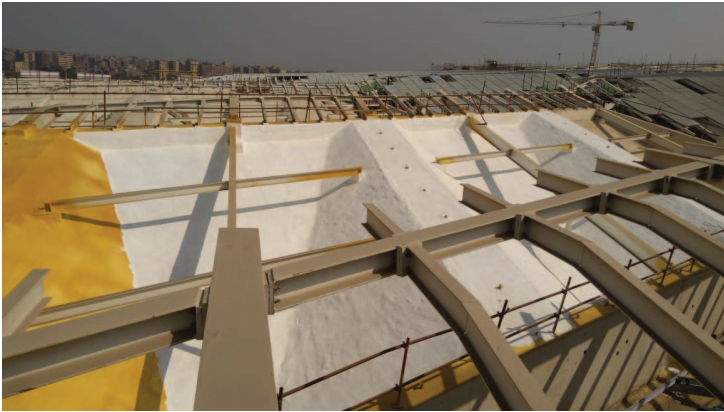
Thermal insulation system for the facades that effectively prevents the heat flow and keep the indoor temperature.

### Why Sika:

■ Sika is globally recognized as the worldwide market and technology leader for roofing solutions, Sika integrated roofing system (Sika combo roof) is one of the most comprehensive roofing solutions that comprises the waterproofing, thermal insulation and finishing for the rooftop.

- The Integrated Roofing System with its monolithic, seamless, joint free, economical, speedy waterproofing properties and its high thermal insulated efficiency that reduces the cooling costs inside Buildings using sika PU foam spray coated with a highly elastic, highly reflective and UV resistant acrylic waterproofing coating sikaFill 100.





# THE GRAND EGYPTIAN MUSEUM

## “REFURBISHMENT”

### PROJECT REQUIREMENTS

- The design of the museum resembles the pyramids and builds on the difference in level to create a structure that doesn't extend above the plateau and defined by visual axes extending from it towards the three pyramids, creating a new edge to the existing plateau. The museum replicates and modernises the triangular shape of the nearby pyramids. All the details of the complex are planned around its triangular structure. The extraordinarily complex concrete structures with an extreme level of precision, so as to ensure the perfect alignment of the underside of the roof and its suspended ceilings consisting of cascading panels.
- Required to strengthen the roof slab to maintain serviceability to such mega project described as the largest archaeological museum in the world the museum Improving service life and durability to comply with current standards.
- Fire rated joint sealant.

### Sika Solution:

#### SikaWrap®-530

- Wet application by Sikadur®-300 Impregnating / laminating resin using Special Saturating machine.
- A special heat curing system was designed so that to apply a temperature of 80C on the whole top of roof slab area for the initial curing period (7 days). The system was designed to have a fully automatic control systems to maintain the temperature. The heating elements were designed to be sure that in case of failure of any of them the system can continue working and maintaining the required temperature. Two electric power sources were provided to avoid any electric cut-outs Fire resisting Heat insulating gypsum boards were used to insulate the whole work area.

### Products Delivered:

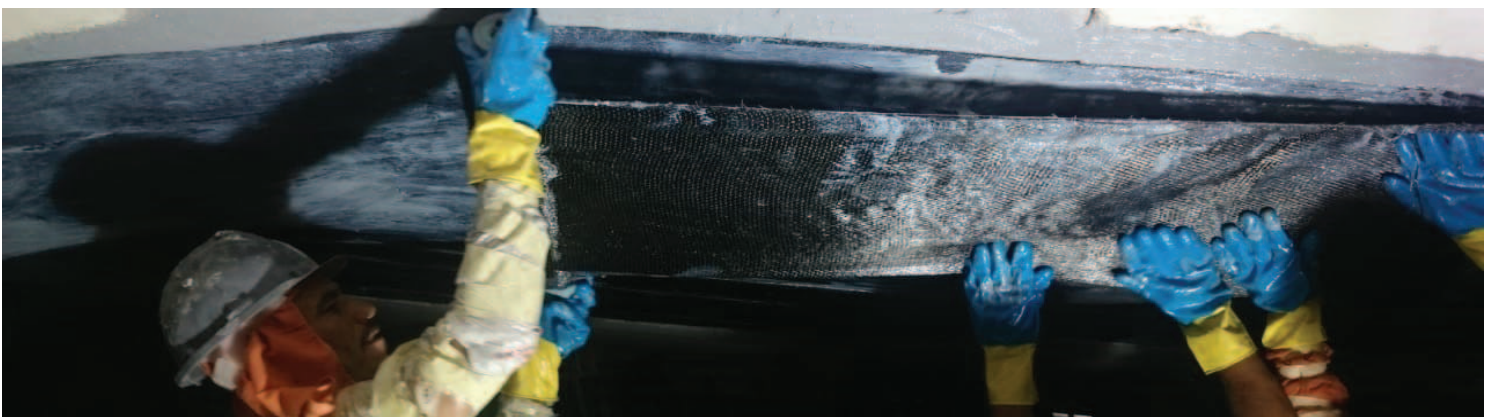
- SikaWrap®-530 C 300m<sup>2</sup>
- Sikadur®-300 240kg
- Sikadur®-41CF 8ton

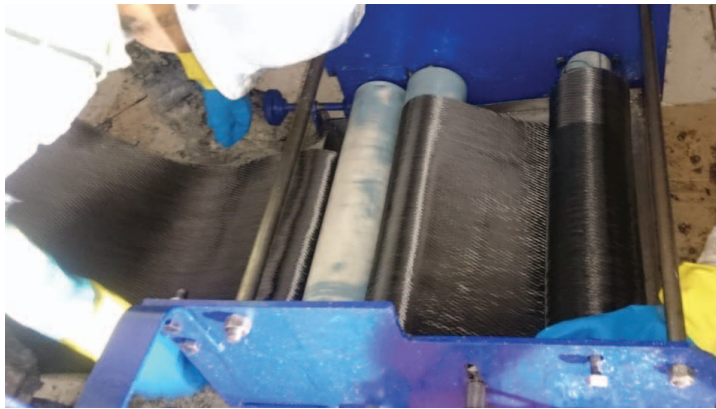
### SPECIAL REQUIREMENTS

- 1- To apply CFRP strengthening system with thickness 0.29mm, taken into consideration to maintain the unique architectural appearance and design
- 2- Special requirements by the Specialized consultant For CFRP system with high Glass temperature to meet the environmental condition ( temperature and UV,...) for the part located at the roof top of slab.
- 3- SIKA® Strengthening system to be applied using wet application method For SikaWrap®, the wet application method is a unique method for applying SikaWrap®, system that insure full saturation of the system.

### Why Sika:

- SIKA® Strengthening complete system covering all the technical requirements including heating curing system and saturating machines .
- Sikadur®-300 Impregnating / laminating resin tests submitted for the Glass temperature required to be achieved.
- Sika® technical support during all strengthening phases.
- Sika® certified applicator with experience for such strengthening cases.
- The challenge of having large area of SikaWrap®, system to have early curing treatment right after application at a temperature of 80C for one week to achieve Glass Temperature of 82C for life time of the SikaWrap®, system insulated.





# THE GRAND EGYPTIAN MUSEUM

## “SEALING & BONDING”

### PROJECT REQUIREMENTS

-Civil & High requirements joint sealant.

### Sika Solution:

The one part polyurethane joint sealant sikaflex 1 A-

### Products Delivered:

Sikaflex® 1 A

Sika® Backing Rod

### SPECIAL REQUIREMENTS

-Meets the international quality standards and rated for movement according to the American standards for joint sealants ASTM C920.

- Joint sealant of limited VOC content to attain certain number of LEED credit.

### Why Sika:

- Sika provides a full range of elastic joint sealants and accessories for buildings and civil engineering structures with the following main advantages:
    - Movement capability exactly matching the requirements for a specific joint to ensure long-term functionality
    - Perfect adhesion to common construction materials to make sure that the joint remains tight at all times
    - Ease of use to minimize installation errors and ensure on-time project completion
    - Optimized visual appearance that meets the demands of architects and owners
    - High mechanical strength, chemical resistance and weather ability to ensure excellent performance even under most adverse conditions and loads
    - Unsurpassed and proven durability that guarantees longevity
- With more than 60 years' experience in sealants and sealant applications, references on all continents and in all climates Sika's product portfolio is designed to fit all requirements reaching from high movement capability to superior UV and chemical resistance. In fact, Sika invented one-component elastic polyurethane sealants and the nowadays very popular and waste-reducing foil packaging for sealants.



# THE GRAND EGYPTIAN MUSEUM

## “INDUSTRY”

### PROJECT REQUIREMENTS

- High-modulus Structural glazing.

### Sika Solution:

- 2-part structural glazing adhesive Sikasil®SG\_500 CN

### Products Delivered:

- Sikasil®SG\_500 CN

### SPECIAL REQUIREMENTS

- 2-part structural glazing adhesive ASTM approved
- Strong flexible fixation of glass units
- Attractive appearance without visible frames
- No shading of glass edges, no thermal stress

### Why Sika:

- Structural glazing modules are subject to extremely high stresses. They must accommodate wind and snow loads as well as thermal expansion.
- Furthermore they permanently transfer the forces to the support structure, while also withstanding weathering over many years.
- High-modulus Sikasil® SG silicone adhesive sealants offer the best properties for this purpose

