



# SIKA AT WORK

## Euphoria Resort & Spa, Chania, Crete

Integrated Sika® systems from the foundation to the roof

BUILDING TRUST



# EUPHORIA RESORT, CHANIA, CRETE



## PROJECT DESCRIPTION

Euphoria Resort & Spa is the new five-star hotel of Mathioulaki's Group, built in a 60 acre coastal area, in the Skoutelona area of Kolimpari, Chania. The new 690-bed hotel, with a total budget of about 41 million, opened its gates on May 11<sup>th</sup>, 2018. The hotel has 287 rooms, 3 restaurants, a fully equipped spa, indoor & outdoor swimming pool, free water park, gym and playground and is the new acquisition of the Minoa Hotel Group.

For a hotel like the luxurious Euphoria Resort in Kolymbari, the provision of high-quality infrastructure and services for ideal family holidays lies in the core of its philosophy, emphasizing in hospitality, wellness, rejuvenation and environmental friendliness. The design and implementation of the conception took place based on these criteria.

## PROJECT DEMANDS

A hotel unit that expects to provide the highest level of service in a purely tourist area that attracts visitors from all over the world requires materials and systems literally from foundation to the roof. Admixtures for various types of concrete, production of waterproof concrete, waterproofing of basements and pools, roofing systems, repair materials, flooring products, products for elastic sealing & bonding are indicative basic categories of applications for which the optimal product system had to be used in order to comply with the requirements of the specification.

## SIKA SOLUTIONS FOR ALL APPLICATION TYPES

For all types of application, Sika products and systems were used.

**Concrete production:** For the requirements of the whole construction, more than 20,000 m<sup>3</sup> of concrete, for various classes, were required totally, featuring specific characteristics at the fresh & hardened phase. For all classes of conventional concrete, the combination of **Sika® Plastiment®-40** retarder and **Sika® ViscoCrete®-300** superplasticizer was used. The production of all classes of conventional concrete with this combination of admixtures ensured at the fresh phase the required maintenance of workability due to the distance of the batching plant from the construction site and at the hardened phase achievement of the designed strengths without any problems.



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**Sika® Watertight Concrete System:** For the concrete of all underground elements and swimming pools (indoor and outdoor) the **Sika® Watertight Concrete System** was used. The system offered a technically complete solution, easily achievable, with ensured efficiency, as any failure both in the underground and the swimming pools signifies overall risk for the construction and the proper operation of the hotel unit.

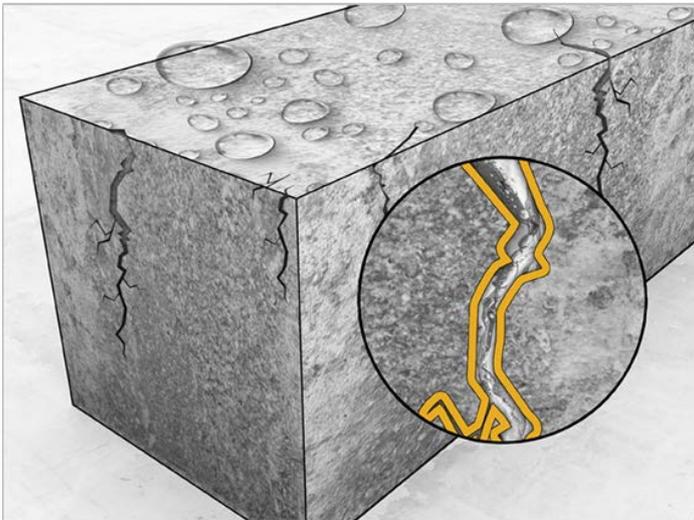
**Sika Watertight Concrete System** offers *endogenous* waterproofing over the entire mass of concrete and not only on the surface in the form of coating. It consists basically of the combination of:

- Reduced Permeability Concrete (Waterproof Concrete), for which the basic requirements are determined and combines incorporation of special admixtures
- Joint sealing products, for watertight construction and movement joints, as well as for waterproofing and complete sealing of all types of penetrations (e.g. pipes)

Its main advantages include:

- The fact that it does not require space for perimeter sealing work (thus maximizing the buildable space and reducing the cost of excavation and disposal)
- Not requiring additional waterproofing mortars, bituminous coatings or membranes
- Reduction of required work and construction costs
- Faster completion of construction
- Protection of concrete endogenously (throughout its mass) against penetration of water and harmful components

As the **Sika® Watertight Concrete System** is a two-step solution, the first step was to produce an optimized concrete mix, following specific instructions for the mix and using Sika admixtures. According to the **Sika® Watertight Concrete System**, recommendations are followed for optimum concrete composition in terms of the proportions of raw materials, combined with special admixtures. As the concrete is by nature a porous material, only the reduction of the Water / Cement ratio can reduce its porosity and thus ensure long-term watertightness. This is achieved on a first level by using **Sika® ViscoCrete®** & **Sika® ViscoFlow®** special, 3-generation polycarboxylate polymer superplasticizers. Secondly, the use of special water resisting and crystalline waterproofing admixtures offers the highest possible level of intrinsic watertightness.

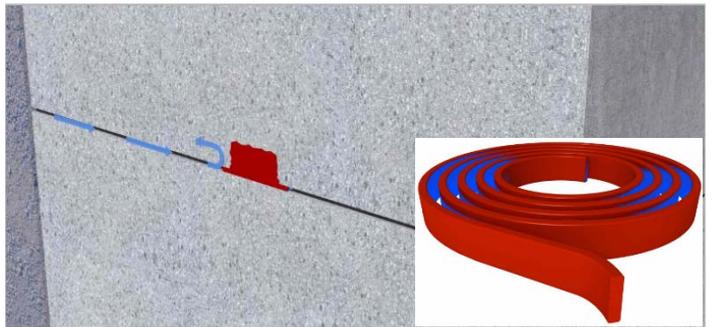


In the specific mixture, the combination of the superplasticizer **Sika® ViscoCrete® Ultra-350** and the mass waterproofing admixture & pore sealant **Sika®-1+** was used.

The most important in the case of the **Sika® Watertight Concrete System** is that Sika offers methods for assessing the level of the achieved watertightness with measurable methods. Consequently, the efficiency of the **Sika® Watertight Concrete System** is self-evident and measurable.



As far as the second step is concerned to ensure the watertightness of the pool, this was achieved by using Sika products to seal and waterproof infiltrations and pipe penetrations of all types using **SikaSwell®** waterproofing profiles. **SikaSwell®** products include polyurethane-based sealants and pre-formed acrylic base profiles, which are placed at the construction joints prior to concrete casting. Due to the nature of the products themselves, they swell in the presence of water and block gaps and pores - even cracks!



**Basement, pool and wet room waterproofing:** In a hotel complex of this range, located on a seaside geographic location, there were extensive needs for waterproofing of underground areas, wet rooms (bathrooms, kitchens) and swimming pools - indoor and outdoor.



The total surface area of the construction that had to be sealed was 15,000m<sup>2</sup> for underground and 6,000m<sup>2</sup> for swimming pools and wet process areas. For underground waterproofing, 1-and 2-component **Sikalastic**<sup>®</sup> cementitious mortars were used, as well as **Igol**<sup>®</sup> and **Igolatex**<sup>®</sup> asphalt based coatings. Additional auxiliary systems that ensured the watertightness level in joints and connections were the **Sikadur Combiflex**<sup>®</sup> System, the **Sika**<sup>®</sup> **SealTape F** sealing tape and **Sika**<sup>®</sup> **Waterbars**. Finally, the bituminous felt **Sika**<sup>®</sup> **Bituseal T-640 PG (-20 °C) HR** was also used for wall protection.



**Roofing:** **Sikalastic**<sup>®</sup> liquid membrane system was used for the waterproofing of the hotel's roofing areas, having a total surface area of > 10,000m<sup>2</sup>. Sika liquid applied membrane systems make it possible to implement designs and architectural concepts outside of the ordinary as they can be applied to almost all types of rooms and are particularly suited to roofing areas with complex geometry and details. In addition, as seamless systems and joints, they are the best choice for high aesthetic and long-lasting roofs. Applied in a white shade (RAL 9016), liquid membrane systems provide excellent solar radiation reflectivity properties, transforming these roofs automatically into "Cool Roofs". This reduces the effect of the thermal urban isle, as well as the total energy costs required to cool the entire building.



Sika is one of the first and active members of the Cool Roof Rating Council (CRRC) and the European Cool Roofs Council (ECRC). Additionally, the applied Sika liquid membrane system is MTC<sup>®</sup> technology based. MTC<sup>®</sup> (Moisture Curing Technology) is based on a unique type of moisture-activated maturing ingredients, which help the product remain unaffected by moisture during the curing process. This means that these membranes cure over a wide range of conditions, including extreme temperature and humidity fluctuations. Unlike conventional polyurethane liquid membrane systems, they do not release CO<sub>2</sub>, which often causes foaming phenomena and their application remains unaffected by adverse environmental conditions. Based on this idea, a system consisting of **Sika**<sup>®</sup> **Concrete Primer**, **Sikalastic**<sup>®</sup>-**612** base coat and **Sikalastic**<sup>®</sup>-**621 TC** final, reflective coat was used for the building structures.



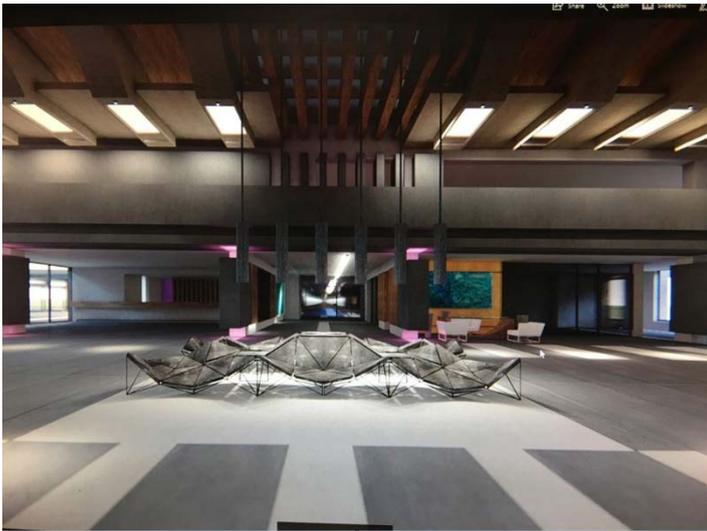
**Floor leveling & elastic bonding:** For the floors of the hotel structure, LVT tiles (luxury vinyl tiles) were selected. However, as the surface had to be completely smooth, the 1-component cementitious, self-leveling **Sikafloor**<sup>®</sup>-**100 Level** mortar was used to achieve a fully smooth finish. Advantages of the material include its high watertightness against dispersion adhesives, smooth surface finishing and its suitability for applications in underfloor heating systems. The self-leveling consistency of the mixture ensures seamless and rapid application by pumping.



On the smooth floor surface, LVT tiles were bonded using the 1-component dispersion adhesive **Schönox® Multi Object**.



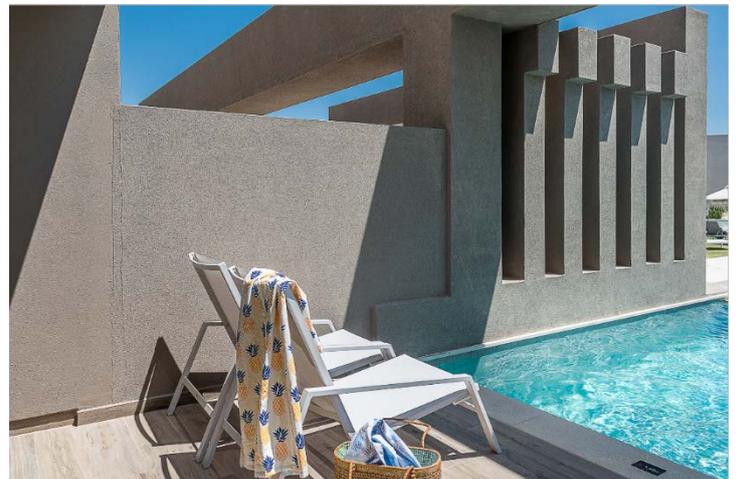
**Schönox® Multi Object** offers excellent coverage (features low consumption), is suitable for internal use (does not contain solvents, carries VOC certifications), is a certified surface-cleaning product (easy to maintain) and is suitable for application in combination with underfloor heating systems and stress from office chair wheels. The total surface for self leveling mortars & LVT tiles was 10.000m<sup>2</sup>.



**Joint sealing:** For sealing all types of expansion and construction joints, the 1-component polyurethane sealant **Sikaflex®-11 FC+** was used to seal outdoor joints of all types (perimeter of verandas, open-air spaces, windows, e.t.c.). **Sikaflex®-11 FC+** features excellent mechanical strength and resistance against aging (weathering). Totally ~15km of joints were sealed.



**Repair & protection of concrete surfaces:** In pedestrian traffic corridors around the outdoor swimming pool, the **Sikagard®-790 All-in-One Protect** impregnation was applied. The product provides protection against water and oil penetration, prevents stains and stains, provides "invisible" protection (no change in the appearance of the substrate) and is UV resistant.



Wherever repair products were required, cementitious and epoxy mortars **Sika MonoTop®** & **Sikadur®** were used respectively.

**PROJECT PARTICIPANTS:**

Owner: **Mathioulakis Group**

Construction contractor: **TOMES I.T.C.**

Architectural specification: **B. Labrinos & MM Consulting Engineers Ltd**

Concrete production: **ERGOBETON**

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**SIKA PRODUCTS IN VOLUME:**

**Concrete production:**

Retarder /plasticizer **Sika® Plastiment-40**: 30 tn

Superplasticizer **Sika® ViscoCrete®-300**: 20 tn

Superplasticizer for waterproof concrete **Sika® ViscoCrete® Ultra-350**: 31 tn

Mass waterproofing admixture **Sika-1+**: 48 tn

**Waterproofing:**

1-component cementitious waterproofing mortar **Sikalastic®-1k**: 40 tn

1-component cementitious waterproofing mortar **Sikalastic®-152**: 75 tn

Bituminous coatings **Igol®/Igotatex®**: 5 tn

Acrylic expansive profile for waterproofing construction joints **SikaSwell®-A**: 6,5 km

Bituminous membrane for waterproofing of underground basement walls **Sika® Bituseal T-640 PG (-20°C) HR**: 300 m<sup>2</sup>

**Roofing:**

PU/PUA primer for liquid applied membrane systems **Sika® Concrete Primer**: 1,5 tn

Liquid applied polyurethane roofing membrane **Sikalastic®-612**: 16 tn

Final polyurethane, reflective roofing membrane **Sikalastic®-621 TC**: 5 tn

**Flooring:**

1-component, cementitious, self-levelling mortar **Sikafloor®-100 Level**: 43 tn

1-component dispersion adhesive for vinyl floors **Schönox® Multi Object**: 6 tn

**Elastic joint sealing:**

1-component polyurethane sealant **Sikaflex®-11 FC+**: 3000 sausages 600ml

**Concrete repair & protection:**

Epoxy resins **Sikadur®**: 2 tn

Cementitious repair mortars **Sika MonoTop®**: 5 tn

Protective impregnation of mineral substrates **Sikagard®-790 All-in-One Protect**: 600 kg





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