



Taranto (Italy)

FUSCO THEATRE

COMPLEX STRUCTURAL STRENGTHENING WORK HAS GIVEN A NEW LEASE OF LIFE TO A HISTORIC THEATRE IN SOUTHERN ITALY

Inaugurated in Taranto (Southern Italy) in 1907, the “Cinematografo Internazionale” theatre was commissioned by a local business man. It was then bought by the local City Council in 2000 and, after encountering various problems, a request for tender was issued in 2015 for bids to restore and refurbish the building. Finally, at the end of December 2018, work was completed and the Fusco Theatre was inaugurated, for a total cost of more than 4 million Euros.

The auditorium can seat 456 people and is equipped with the most up-to-date technology in terms of acoustics and scenery. While carrying out the work, ancient ovens and several tombs were unearthed and these have now been put on display to create an archaeology exhibition.

From design to application

Mapei Technical Services also participated in the complex design phase of the project and worked alongside the design team and the Local Heritage Authority. The work was divided into several stages.

Static strengthening and seismic upgrading work. Localised repair work was carried out on various concrete elements that had been damaged over the years (beams and pillars) by removing all rust from the steel reinforcements, passivating them with MAPEFER anti-corrosion cementitious mortar and then applying MAPEGROUT THIXOTROPIC repair mortar. The next step was to improve



the static and seismic capacity of the building by applying composite C-FRP systems. Some of the reinforced concrete pillars were confined with products from the MAPEWRAP SYSTEM line and the same system was used to improve the shear and flexural strength of some of the beams, which were also made of reinforced concrete. In this case, the products used were MAPEWRAP PRIMER 1 two-component primer to prepare the substrate, MAPEWRAP 12 two-component thixotropic epoxy putty for levelling the surface and MAPEWRAP C UNI-AX 600/25 carbon fibre embedded between two layers of the two-component epoxy matrix MAPEWRAP 31 for impregnating and bonding. The surface was then broadcast with QUARTZ 1.9 sand to make the following finishing operations easier. While carrying out the strengthening work, MAPEWRAP C FIOCCO/12 mm carbon fibre cords were also applied. The section to be anchored in the concrete was

impregnated with MAPEWRAP 21 two-component epoxy resin before broadcasting with QUARTZ 1.9 sand. This preformed part was anchored in the concrete with MAPEFIX EP 385, a chemical anchoring product certified C1 for structural loads in seismic zones. The remaining fibre cord was splayed with MAPEWRAP 31 over the previously applied C-FRP system. MAPEFIX VE SF 300 vinylester anchor (which is also certified C1 according to the European Standards ETA for structural loads in seismic zones) was used, on the other hand, for the chemical anchors of MAPEWRAP S FIOCCO/12 cords and MAPEWRAP 12 two-component epoxy grout for the splayed portions of the cords.

Coatings for the internal flooring. To improve the performance properties of the floorings, Mapei Technical Services proposed using ULTRATOP LOFT, a high-strength, protective cementitious coating system with high resistance to wear, ideal for pedestrian traffic in theatres and able to

meet the requirements of engineers from the Local Heritage Authority and the City Council's engineering department.

The substrate was treated with a first coat of PRIMER SN, preliminary fillerized with QUARTZ 0.5 quartz sand, and reinforced with MAPENET 150 mesh. Then, using the wet-on-wet technique, the surface was broadcast with QUARTZ 0.5 sand and a second coat of PRIMER SN was applied. Once the primer had set, the surface was sanded down and the residual dust was vacuumed off until a layer of ULTRATOP LOFT F, one-component, coarse-textured, trowellable cementitious paste in the "Natural" color, was applied.

After 6 hours, the surface was sanded down again to level off any areas where too much product had been applied.

A coat of PRIMER LT, diluted 1:1 by weight with water, was then applied in order to seal the porosities formed after the sanding treatment and to facilitate the application of the following layer of ULTRATOP LOFT W, one-component, trowellable, fine-textured cementitious paste, again in the "Natural" color.

Thanks to this product, the pattern and finish obtained complied with the specifications of the client and,

consequently, of the project management.

After sanding the surface of ULTRATOP LOFT W, which had completely hardened, a coat of ULTRATOP BASE-COAT, transparent, acrylic formulation, was applied to seal the pores on the surface.

Once this product was completely dry, work was completed by applying a coat of MAPEFLOOR FINISH 50 N, two-component, transparent polyurethane finish, followed by a coat of MAPEFLOOR FINISH 58W, a finishing product with protective properties that improves the resistance to wear and scratches, while limiting dirt pick-up and making routine cleaning and maintenance operations simpler.

Waterproofing system for the roof. After demolishing and removing the old waterproofing system, a new screed was applied over the entire roof surface. The perimeter walls, on the other hand, were regularized with PLANITOP FAST 330, fast-setting, fibre-reinforced cementitious mortar.

The surfaces to be left exposed were waterproofed with AQUAFLEX ROOF PLUS, a hybrid, ready-to-use, highly elastic and quick drying, liquid waterproofing membrane.

All surfaces were suitably cleaned



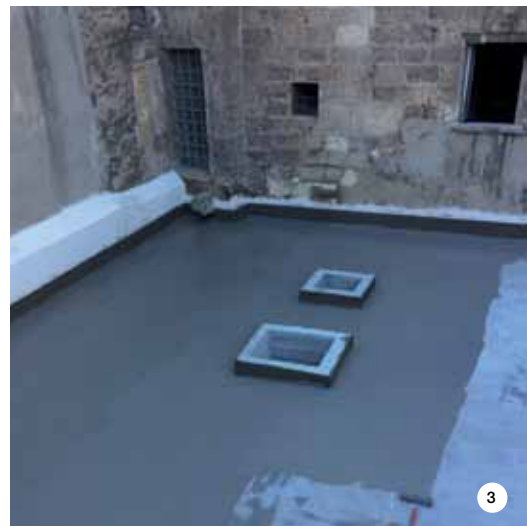
1. Various beams and pillars were repaired with MAPEFER and MAPEGROUT THIXOTROPIC.
2. The work required to improve and upgrade the theatre's static and seismic capacity was carried out using the MAPEWRAP C UNI-AX SYSTEM.
3. The roof was waterproofed with AQUAFLEX ROOF PLUS liquid waterproofing membrane reinforced with MAPETEX 50 mesh.
4. ULTRATOP LOFT F and ULTRATOP LOFT W were used to create highly resistant cementitious floors that would meet the requirements of the project management.
5. The archaeology exhibition recently completed under the theatre.



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and primed. AQUAFLEX ROOF PLUS was then applied with MAPETEX 50 non-woven fabric embedded within the two layers. The first coat was followed by three other coats of the same product. MAPEBAND SA, an adhesive butyl tape with alkali-resistant non-woven fabric, was applied on the joints between vertical and horizontal surfaces.

As for the surfaces to be covered with ceramic tiles, MAPEBAND rubber tape with alkali-resistant fabric was applied on the control joints and on the joints between horizontal and vertical surfaces. The sur-

faces were then waterproofed with MAPELASTIC, a two-component, elastic, cementitious mortar for balconies, terraces, bathrooms and swimming pools.

During the application of the two coats, MAPENET 150 alkali-resistant fiberglass mesh was embedded between the two layers.

Once the two coats were completely dry, the stone covering was bonded with ADESILEX P9. This is an improved, slip resistant, cementitious adhesive with extended open time classified as C2TE according to EN 12004 standard.

MAPEWRAP C UNI-AX SYSTEM

Structural strengthening system consisting of high-strength, high-modulus, unidirectional carbon fibre fabric and epoxy resins to impregnate and bond the fabric (FRP)

FIND OUT MORE



TECHNICAL DATA

Teatro Fusco, Taranto (Italy)

Year of construction: 1907, rebuilt in masonry in 1927

Period of the Mapei intervention: 2017-2018

Intervention by Mapei: supplying products for seismic upgrading and structural strengthening, laying cementitious floors, waterproofing the roof

Design: Studio START, Techn Srl, Leda Ragusa, Enrico Conte, Gabriele Napolitano, Maria Grazia Pupino, Alessandro Sangermano, Giorgio Tonti,

Laura Tonti, Pietro Pepe

Client: Taranto City Council

Supervision: Archeology, Fine Arts and Landscape Office for the Brindisi, Lecce and Taranto

provinces (Augusto Ressa, Antonietta dell'Aglio)

Project manager: Vincenzo Piccolo (Taranto City Council)

Works director: Cosimo Netti

Site director: Domenico Speciale

Contractor: GI.PI. Appalti

Mapei distributor: Commerbit srl

Mapei coordinators:

Achille Carcagni, Giammario Dispoto, Michele Cannarile, Gianni Capriglia, and Giuseppe La Neve, Mapei SpA (Italy)

MAPEI PRODUCTS

Concrete repair: Mapefer, Mapegrout Thixotropic
Seismic upgrading and structural strengthening: MapeWrap Primer 1, MapeWrap 12, MapeWrap 31, MapeWrap 21, MapeWrap 3, MapeWrap C Fiocco, MapeWrap C UNI-AX, Quartz 1.9, Mapefix EP 385, Mapefix VE SF

Cementitious floors:

Mapenet 150, Primer LT, Primer SN, Quartz 0.5, Ultratop Basecoat, Ultratop Loft F, Ultratop Loft W, Mapefloor Finish 50 N, Mapefloor Finish 58W

Waterproofing roofs:

Aquaflex Roof Plus, Mapeband, Mapeband SA, Mapeelastic, Mapetex 50, Mapeenet 150, Planitop Fast 330

Installing stone floors:

Adesilex P9

For further information on products see www.mapei.com