



THE CHURCH OF SAN JERÓNIMO IN BAZA, SPAIN

SERIOUSLY DAMAGED AFTER YEARS OF NEGLECT, THE CHURCH NAMED AFTER SAN GIROLAMO REQUIRED CONSOLIDATION AND RENOVATION WORK

The Church of San Jerónimo in Baza (Spain), a city not far from Granada, is part of a much larger monumental complex that includes a monastery, named after the same saint, and the Enríquez Palace, which was declared a Monument of Historical and Artistic Significance to Spain in 1975. The origins of the complex date back to 1502 when Enrique Enríquez, the uncle of King Ferdinand II of Aragon, married Maria de Luna who commissioned its construction.

THE ARCHITECTURAL HISTORY AND STRUCTURE OF THE CHURCH

The entire San Jerónimo complex played a key role during the 17th and 18th centuries, both for the religious life of the city and for the economical influence it exerted thanks to the properties it owned. During the War of Independence (1808-1814), that saw the Spanish fighting against the French, the church was abandoned by the monks and occupied by the troops of Napoleon. It was then reopened for worship and, in 1936, at the start of the Civil War, it was closed down for the last time. It was later used as a storehouse and a shop and then, a few years ago, it was bought by the Municipality of Baza, which undertook the work thanks to a project jointly financed by the European Regional Development Fund.

The church has a long central nave and shrines are situated on the north side; the great shrine, built in 1535 in a late-Gothic style, contains the tombs of the Enríquez-Luna family. The apse has an octagonal form with external buttresses and is covered by a gothic vaulted roof in the form of a cross. The central nave, on the other hand, has a barrel vaulted roof that runs up to the choir area with upper lunettes sitting on arches. The sacristy was added in 1588

and the church was finally completed in 1690.

The remains of the monastery include the monks' cells, the refectory and some of the Renaissance style arches from the cloister designed in 1554 by Juan García de Gibaja. In the Southern part a second cloister was built of which today there is no trace, as well as the storehouses for the monastery, a cellar and a windmill.

THE CONSOLIDATION WORK

After years of neglect the entire structure of the complex, and of the church in particular, was severely damaged. Upgrading work started to consolidate the structure of the building.

Because of the gravity of the cracks and the consolidation work to be carried out, the designer engineer and main contractor contacted Mapei Technical Services for their support in order to rely on the company's cutting-edge products and systems, as well as their vast experience in renovating architectural works and consolidating masonry structures.

The site survey carried out by Mapei Technical Services revealed a series of problems caused mainly by the long period of general neglect of the church and the progressive worsening of the damage over the years. The main critical areas highlighted were the consolidation of the cross-shaped vaulted roof and the renovation work required for the masonry.

The intervention started with a careful, thorough clean, followed by patching the decorative features and elements, consolidation work on both the vaulted roof and the stone walls, replacing missing stone from the masonry and then pointing the stone used to build the walls.





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**IN THE SPOTLIGHT
MAPE-ANTIQUE I**

It is a cement-free, super-fluid hydraulic binder in powder form for injection slurry made from lime, Eco-Pozzolan, natural ultra-fine sand and special additives. It is ideal for consolidating foundations, pillars, vaulted roofs and archways; consolidating cement-core walls; consolidating stone, brick, tuff and mixed masonry on old buildings, including those of historical or

artistic interest; consolidating masonry with the presence of capillary rising damp and soluble salts. This product can contribute up to **3 points** to obtain the **LEED** certification.



PHOTO 1. The external masonry walls at the start of the intervention.

PHOTO 2. The same walls after being consolidated with MAPE-ANTIQUE I and repaired with MAPE-ANTIQUE STRUTTURALE NHL mortar.

PHOTOS 3 and 4. The MAPEWRAP System was used to consolidate and strengthen the extrados of the cross-shaped vaulted roof.

PHOTO 5. The surface of the cross-shaped vaulted roof was repaired with PLANITOP HDM RESTAURO.

and cavities and consolidate the structure. PLANITOP HDM RESTAURO two-component, pre-blended mortar was then applied in combination with MAPEGRID G 220 alkali-resistant, primed glass fibre mesh to structurally strengthen the surface of the vaulted roof.

Consolidation and strengthening the cross-shaped vaulted roof (extrados).

After cleaning and removing the damaged decorative elements, Mapei technicians recommended anchoring the perimeter walls to the vaulted roof with MAPEWRAP G FIOCCO glass fibre cords impregnated with MAPEWRAP 21 two-component, super-fluid epoxy resin. MAPE-ANTIQUE I lime and Eco-Pozzolan-based, hydraulic binder was then applied by injection to seal the cracks, gaps

“Patching” the decorative strips under the cross-shaped vaulted roof

After cleaning and removing the most badly damaged elements, the decorative strips running along the entire length of the vaulted roof were uneven and cracked. It was decided to intervene by injecting MAPE-ANTIQUE I binder to repair the cracks and improve their tensile strength. MAPE-ANTIQUE I binder was then applied by injection to seal the cracks, gaps



Consolidation and strengthening the cross-shaped vaulted roof (internal face)

After removing the damaged areas of the cross-shaped vaulted roof and cleaning the substrates, holes were drilled in the surface to position MAPEROD G bars and MAPE-ANTIQUÉ I binder. After this intervention, the cracks and surface of the vaulted roof were repaired by applying MAPEGRID G 220 glass fibre mesh directly on an even layer of PLANITOP HDM RESTAURO. Thanks to its high content of synthetic resins, this mortar has excellent adhesion and, once hardened, forms a tough, compact layer which is impermeable to water but permeable to vapour.

Repairs to the internal and external masonry walls

This intervention commenced with the removal of the old, loose stones and a thorough clean of the walls. After drilling holes for the MAPEROD G pultruded bars and the MAPE-ANTIQUÉ I binder to consolidate the vertical surfaces, the next phase was to replace the damaged or missing stones and to consolidate and point the existing stones, again with MAPE-ANTIQUÉ I.

To repair the render on the walls, it was recommended to apply MAPE-ANTIQUÉ STRUTTURALE NHL high-performance, transpirant, cement-free mortar for render and masonry work, made from natural hydraulic lime and Eco-Pozzolan. This product is particularly recommended for making "reinforced"

and installation mortars.

Apart from the interventions above, the entire vaulted roof system was repaired and consolidated. This included the vaults over the shrines running along the side of the church, the apse, the transept and the bell-tower. The floors were rebuilt and new lighting and fire-prevention systems were also installed.

TECHNICAL DATA

San Jerónimo Church,

Baza-Granada, Spain

Period of Construction:
1535-1690

Period of the Mapei

Intervention: November
2014 – August 2015

Intervention by Mapei:

supplying products for
strengthening the walls and for
consolidating masonry walls
and plasters and

Client: Luis Miguel Carranza
Yáñez

Main Contractor:

Construcciones Otero

Main Distributor: Histamar

Mapei Co-Ordinator:

Alfonso Carrasco, Mapei Spain

MAPEI PRODUCTS

Consolidating masonry walls
and plaster: Mape-Antique
Strutturale NHL

Strengthening stone walls:
Planitop HDM RestauRO +
Mapegrid G 220, Mape-
Antique I, Maperod G,
MapeWrap G Fiocco,
MapeWrap 21

For further information see the
websites www.mapei.com
and www.mapei.es