

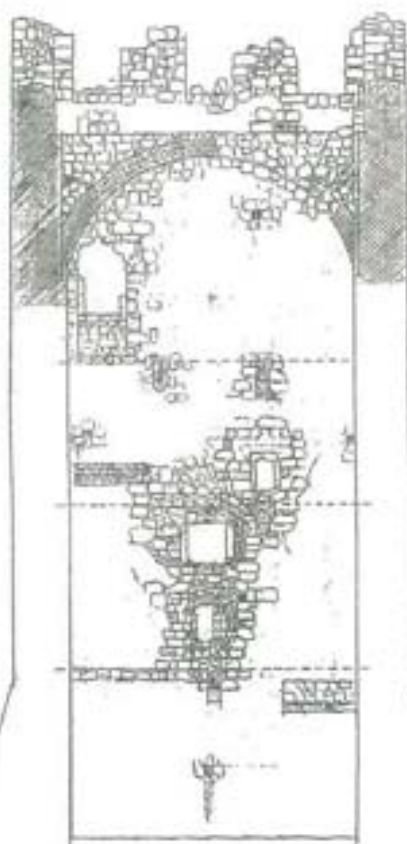
RESTORATIONS

INSIDE THIS ANCIENT DEFENSE FORTRESS THE DECAY OF THE LIME-BASED BONDING NEEDED RESISTANT BUT DELICATE "SCIENTIFIC" PRODUCTS. ONLY IN THIS WAY COULD THE TOWER RETURN TO ITS ORIGINAL SPLENDOR.

by Paolo Alberti

THE SAN FLORIANO STRONGHOLD

At right, lithological test of the eastern side of the tower were conducted by dr. Pierfrancesco Comis to establish the right intervention. Below, an outlook of the eastern side of the tower during the intervention with few products from the line MAPE-ANTIQUE



The stretch of the Alemagna road connecting Vittorio Veneto to Fadalto (a Venetian valley) is ideal to be driven on a journey back in time. For years the Venetians seeking one's fortune covered this road which runs from Eastern Venetia to Austria and Germany. Before those times the Venetians from the Serenissima Republic used to collect tolls for goods and people in transit. The San Floriano Stronghold, lapped from this ancient route and from the new highway, is characterized by a rich history tracing back to very early times, before the Romans, then the Goths, the Longobards and eventually the Franks built up a set of fortifications to defend the whole valley. The San Floriano Stronghold belonged to this defense system being the lookout post, the sanitary inspection and the toll collection control point. In this tower, placed on a rocky spur (exactly over the fault often causing earthquakes), in 1992 Mapei carried out a restoration with MAPE-ANTIQUE for the repair and recovery of the ancient masonry. The customer, Vittorio Veneto municipality, after executing several static and analytic checks of the stones and mortars constituting the tower, found it imperative to use products and systems specifically designed for historic renovation.

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The technical data sheets for the products mentioned in this article are contained in Mapei binder No. 3 "Building Specialty Line"



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From top to bottom page: the southern side of the tower with the new highway to Vittorio Veneto, in the background; the former undertaking of restoring with cementitious products totally cracked; view of the southern side with the degraded and inconsistent thick-bed mortar

Consolidating and Curing

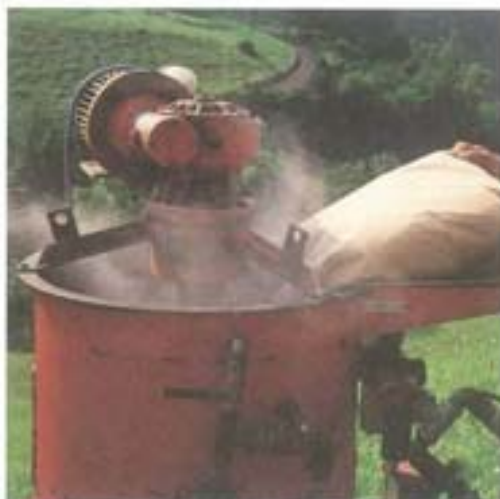
Before the restoration, Mapei conducted an analysis of the exact composition of the aggregates and of the different bonding materials used throughout the centuries. It was necessary to draw mortar samples to be analyzed at the Mapei laboratories in cooperation with professor Collepari of the Enco company. The analysis showed that the mortars utilized in bonding the stones has a certain quantity of sulphates. The use of normal cement-based mortars would have provoked negative results. The specifications lead to the choice of MAPE-ANTIQUÉ since it is able to provide low flexibility modulus, shrinkage control, and no reaction to sulphates.



There were two stages of renovation; sealing the stones with MAPE-ANTIQUÉ MC, a mortar designed for historic buildings, followed by the consolidation, with injections of MAPE-ANTIQUÉ I, a binder also designed for historical building masonry.

Conclusions

Consolidating has only been the first step towards the restoration of the Stonghold, which will no longer be a ruin but a fascinating building open to the public. The architecture of the Stonghold is suitable for transformation into a museum displaying medieval techniques for defense and construction.



The renovation, totaling U.S. \$470,000, provided a complete restoration of the 18 meter high roman tower. Thanks to the financing of several companies, Mapei was also able to restore the entrance floor, build transparent roofing, and renovate the drawbridge.

TECHNICAL DATA

Project: San Floriano Stronghold, Vittorio Veneto (TV), Italy

Year of construction: 15th century, on roman ruins

Year of the restoration: 1992

Design: Prof. Arch. Guido Zordan of the University of Venice

Construction supervisor: Eng. Giuseppe De Vido, Vittorio Veneto Municipality

Contractor: Brenelli di Porcia (Pn)

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On the left, preparation of the MAPE-ANTIQUE I slurry bond coat directly in the special injection pump; executing the consolidating injections with MAPE-ANTIQUE I; detail of the hole after the injection. Below, the tower is ready for a new use.

