



The Mola tower

weathering analysis of building materials for its restoration project

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The Mola castle , rising on the sea-front of Formia, is formed by a medieval tower and by a complex fortification realized in the vice-regal period of Bourbon domination.

A marvelous Renaissance portal, in limestone, gives entrance to the fortification, introducing to a court where the ancient stone flooring in limestone bloks is still in place.

The Tower was built in 1289 due to the will of King Charles I D'Angiò to realize an armed fortification in the lee of the sea , with the function of vigilance and defense for the surrounding territory; it develops in four levels for a total height of about 27 m and a diameter of about 15 m. The tower rises on ancient roman structures and it presents today a remarkably decay. The horizontal structures of the firsts three levels are realized with dome vaults, while the upper level uncovered.

The Tower walls are realized by composed by strikes and limestone chips disposed and cemented in irregular manner, alternated with regular rows, having a stiffening function , The Castle' walls, on the contrary are made of bricks fragments, rounded limestone cobbles , faience's fragments and tufaceous manufacture refuses .

The mortar binder, of a light yellow-whitish color, is composed by a mix of lime and sand of vulcanic origin .

The building show a diffused decay , quite worrying both due to the presence of a capillary rising dampness that caused the salt exit, producing stone's exfoliation , and to the presence of manifested damages, compromising the statics of the structure.

The stone porosity and the high water absorption coefficient are the main degradation causes , whose effects are manifested at greater or scale in relation with climate variations.

Consolidation's intervention of external walls are aimed to the maximum conservation of structural and material systems, with the choice of not invasive reconstitution techniques of the static equilibrium, (concrete or steel frames insertion).

Material and working techniques of the constructive local tradition, as the unplastered walls and the stones will be preserved by adopting restoration methods that should take in to account no aggressive interventions and their reversibility .