

CALIBRAZIONE DI UNA METODOLOGIA SPERIMENTALE PER LA MITIGAZIONE DEL RISCHIO E LA CONSERVAZIONE DEI RIVESTIMENTI DEL DUOMO DI MILANO.

CALIBRATION OF AN EXPERIMENTAL METHODOLOGY FOR THE RISK MITIGATION AND THE CONSERVATION OF THE COATINGS OF THE MILAN CATHEDRAL

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Abstract.

The work investigates the calibration of a non-destructive testing technique (NDT) for the characterization of the Candoglia marble used in the Cathedral of Milan. This metamorphic rock composes all the coatings of the walls and the rich decorative apparatus, like statues, low relieves, spires and moldings. The analysis of its state of conservation has always been a prerogative of the Veneranda Fabbrica, the subject in charge since 1387 to complete, conserve and protect the building. During its realization, several elements were repaired and renewed due to deep deterioration of specific elements. More recently, a scientific method for evaluating the risk connected to the failure of this material was also introduced: the aim is to avoid tragic episodes, like the accidental falling of pieces of the decoration apparatus, through a periodical control of the surfaces of the cathedral aimed at recording and combining a set of data to improve the condition assessment on the architectural elements.

The authors planned and carried out a series of tests to calibrate a procedure, based on ultrasonic tests, able to characterize the stone material and predict future worsening process dealing with its mechanical properties. According to the collected results, this method could improve the good practices for the supervision of the decay of monuments and public buildings.

Keywords: *Milan Cathedral, Candoglia marble, ultrasonic tests, microscope analysis.*