



Interpretation of architecture changes by combined use of historical sources, IR Termography and GPR: the study case of San Francesco convent near Montella (AV), Italy

Edoardo Geraldini (1), Antonio Loperte (2), and Carmen Dolce (1)

(1) Istituto per i Beni Archeologici e Monumentali, CNR- IBAM, Tito scalo (Italy), (2) Istituto di Metodologie per l'Analisi Ambientale, CNR-IMAA, Tito scalo (Italy)

In order to reconstruct architectural changes during the centuries often we are forced to trust merely on the evidences of documentary and iconographical sources which could sometimes supply the description of the monument or of a specifically building phase. Such approach does not solve all the questions related to the interpretation of historical data (graphics, descriptions) useful for finding previous configurations of the building. The historical building structure and shape, as they appear at the present are often the final result of a stratification of different phases deeply connected with artistic and technological features of the age during which the building has been designed and realized. Stylistic features, building techniques and functional aspects change in time leaving often written traces in archive sources such as on the building masonry texture (sometimes hidden by plaster) or under the floor. In such situation the Non Destructive Testing investigations by means of infrared thermography and GPR could be useful to characterize masonry, to survey inhomogeneities in the masonry as well as to detect buried walls belonging to ancient building phases.

This paper deals with the emblematic study case of San Francisco convent near Montella in Southern Italy. Its complex vicissitudes experienced in last centuries have been the reason of radical transformations of the church and its surrounding buildings. Historical research provided important information on structural interventions and planimetric transformations carried out between the 17th and 18th century. Such data have been correlated with the results obtained by infrared thermography surveys on plastered facades of the convent and GPR profiles carried out under the stone paved floor of the church and cloister, thus improving the knowledge of historical building phases of the monument. The integrated use of building analysis techniques based on NDT techniques together with historical and archaeological records show the enormous potential of the use of this interdisciplinary approach.