

# ADVANCED TECHNOLOGIES FOCUSED ON THE EVALUATION OF THE STATE OF PRESERVATION AND RELATED RESTORATION ACTIONS IN THE MONUMENTAL HISTORICAL HERITAGE

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## Abstract

*This presentation recalls a new initiative within the Emilia-Romagna Region: the establishment of the NEREA (NEtwork for Advanced REnewal), a consortium among research centres, universities and high-tech companies. The NEREA supports research in advanced restoration techniques and it is organised as a virtual laboratory. The main activities of the network concern evaluation of the quality of materials used in restoration and dissemination of information concerning the application techniques focused on the needs of SMEs specialised in architectural and archaeological restoration. The ultimate goal of the NEREA is creating the possibility for SMEs to certify their products at the EU level. Even though created on the regional level, the NEREA is important to the establishment of broader co-operations at both national and international level, through bilateral-multilateral agreements with parallel, specialised consortia-institutions.*

KEYWORDS: NEREA, NETWORK, ADVANCED, RENEWAL, RESTORATION, CERTIFICATION.

KULCSSZAVAK: NEREA, HÁLÓZAT, RESTAURÁLÁS, MINŐSÉGBIZTOSÍTÁS

The main architectonic features of monumental palaces, their facades in particular, while offering a direct understanding of town centres' historical development, are our very first contact with the monuments themselves. More generally they represent a cultural heritage which deserve to be preserved for the benefit of future generations. Ancient residences, however, often shows serious conservation problems, thus calling for strictly focused restoration works.

Aimed as remedy to the degradation of this unique European wealth, comprehensive analytical studies

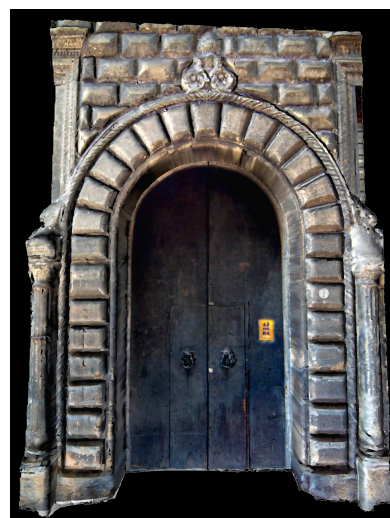
should be identified and properly implemented. The starting point is both the historical-diagnostic evaluation of the monumental building (history related research, "layers" analysis, ...) and the analytical study of the physical characteristics (micro-invasive and non-destructive analyses, chemical-petrography and mineralogical surveys,...).

This will offer the necessary basis for establishing the proper intervention methodology, specific and tailored case-by-case.



**Figure 1**

Palazzo Bevilacqua -  
Bologna Photographic  
analysis



**Figure 2.**

Palazzo Bevilacqua -  
Bologna three -  
dimensional reconstruction  
of a constructive detail.

Highly sophisticated techniques should be considered in the more general frame of the restoration project as a whole, because of the importance of assuring the convergence of different aspects on both the technological and cultural sides. Thus advanced diagnostic technologies are favouring the development of a new approach to the theory and the best practice of the restoration processes.

This presentation presents the recent technical development in this field and, at the same time, recalls a new initiative within the Emilia-Romagna Region: the establishment of the NEREA, a consortium among research centres, universities and high-tech companies. The centre aims at constructing two networks – one operating on the regional level and the second one on the national level – where research centres working in the area

of restoration and consequent support activities can meet. The main activities of the network concern the evaluation of the quality of materials used in restoration and the dissemination of information concerning the application techniques focused on the needs of SMEs specialised in architectural and archaeological restoration. The ultimate goal of the NEREA is creating the possibility for SMEs to certify their products at the EU level. The NEREA will be committed, from one side, to the implementation of focused R&D activities according to well-proved business-related models; from the other side, to the promotion of the SMEs which operate in the specific sector. Even if created on the regional level, the NEREA is strongly interested to the establishment of broader co-operations at both national and international level, through bilateral-multilateral agreements with parallel, specialised consortia-institutions.