

Characterization of Decorative Portuguese Gypsum Plasters from the XIX-XX Centuries: the Case of the *Bolsa Palace* in Oporto

T. Freire¹, A. Santos Silva¹, M. R. Veiga¹, J. de Brito²

¹ Laboratório Nacional de Engenharia Civil, Portugal, mtfreire@gmail.com

¹ Laboratório Nacional de Engenharia Civil, Portugal, ssilva@lnec.pt

¹ Laboratório Nacional de Engenharia Civil, Portugal, rveiga@lnec.pt

² Instituto Superior Técnico, Portugal, jb@civil.ist.utl.pt

Abstract In order to achieve the issues of compatibility for the design of new repair products a complete characterization of the original materials is of extreme importance. Gypsum plaster materials are not an exception to that rule. The characterization work of the Portuguese historical gypsum plasters has never been done as well as the study of efficient solutions for their preservation.

In this paper the results of the characterization of gypsum plaster samples from the second half of the XIX century belonging to the *Arabian Room* of the *Bolsa Palace*, located in Oporto, North of Portugal, are presented and discussed.

XRD, TGA-DTA, optical microscopy and FESEM-EDS observations were used for the chemical and microstructural characterization. Some physical properties, such as dynamic modulus of elasticity and capillary absorption were also determined. A relationship between the results obtained, namely composition and characteristics observed in the samples, and the technology associated to their use and application on site is established.