

SUPSI

Mortars for historic buildings: comparison between traditional and ready mixed mortars

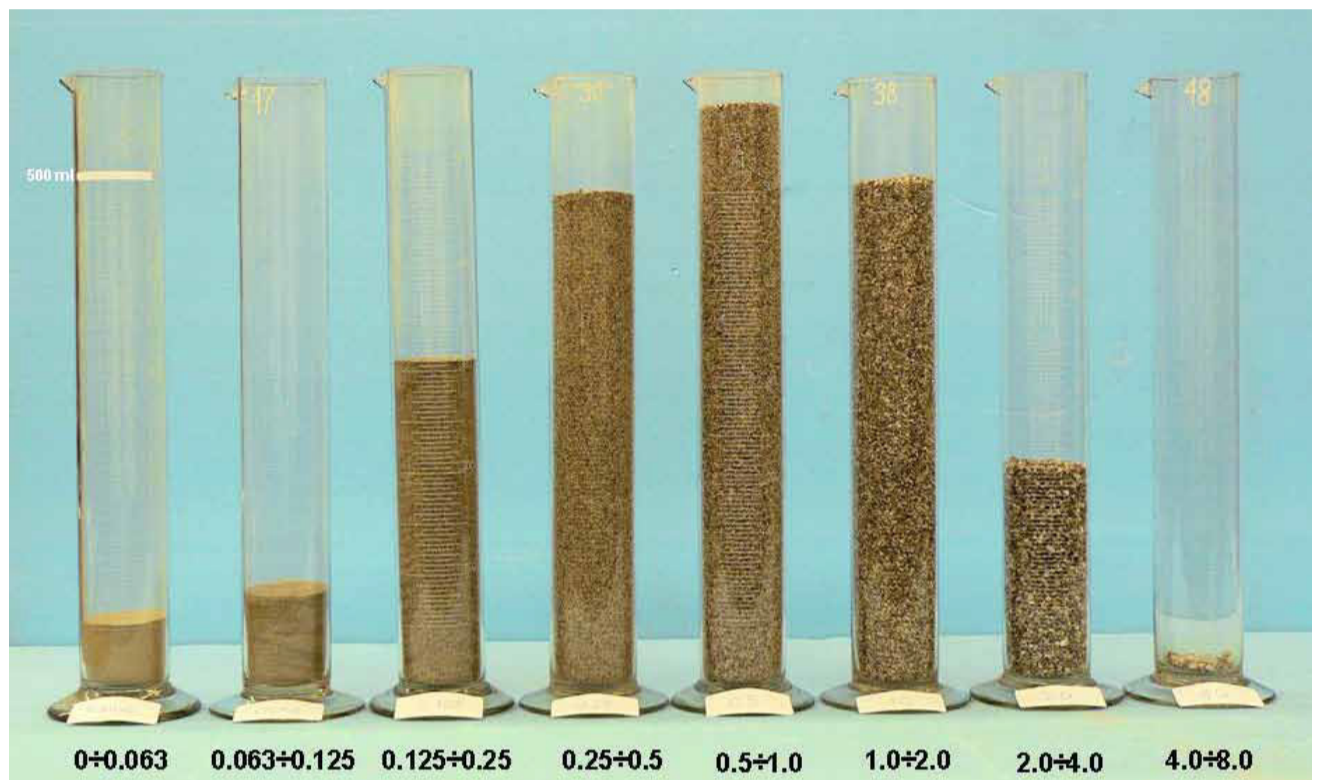
During the last three decades, the use of lime based mortars for repair and conservation of historic buildings has undergone a considerable regain of interest in many countries. It does not seem this to be the case in Switzerland where the use of traditional mortars is becoming rather an exceptional event. Most of the interesting projects already conducted or still going on dealing with this topic, were focused on compositional variations and were performed at a laboratory scale. On the contrary, in our project the experimental work will mainly be focused on application and good site practices required in order to reach a suitable durability, and it will be conducted at a "site" close scale.

The critical literature review foreseen in the first phase of the project is intended in order to take advantage of the main results obtained in the research works already carried out on this topic. In addition, a questionnaire will be prepared and sent to different specialists (specialized craftsmanship) with the purpose of gathering valuable empiric knowledge seldom published.

The second phase of the project, which will be dedicated to the characterization of different selected samples mainly of historic mortars from the Alpine area, is intended to establish which are the main factors related to composition and to site practices that significantly influence the behavior of mortars.

Based on the results obtained in the first and second phases, the third phase should allow the evaluation of the relevant parameters, either related to the nature or the proportioning of the constituent materials, or related to preparation and application, which significantly influence the performance of mortars. The working conditions will be similar to those prevailing on site.

In the fourth and final phase, ready mixed mortars and site prepared, traditional lime based mortars, will be prepared and applied to a testing wall in order to compare their performance with time. Artificial ageing will be conducted parallel to the natural outdoors ageing.



During our two years long project, the use of lime based mortars on historic buildings will be monitored on selected examples in order to establish a base for the evaluation of their behavior with time. Finally, the results obtained will be used for the preparation of a practical course promoted by the cultural heritage authorities from the canton Ticino.

At the end of our project following objectives should be achieved:

- a better understanding about how variations related to the nature of the constituent materials or to their proportioning influence the performance of mortars,
- a better knowledge about preparation, application and required good working site practices in order to insure a good mortar quality and, therefore, a high durability, and finally
- a better knowledge about the performances of some ready mixed products available today in the Swiss market, which should allow an objective comparison between these products and the traditional, site prepared, lime based mortars.

Publication

- Jornet A., Mosca C., Cavallo G., Corredig G., *Comparison between Traditional, Lime Based, and Industrial Dry Mortars*, in *2nd Historic Mortars Conference HMC2010 and RILEM TC 203-RHM Final Workshop* 22-24 September 2010, Prague, pp. 630-640

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Financed by

FNS – Swiss National Science Foundation

Project partners

Canton Ticino, Ufficio per i beni culturali

Duration

01.06.2007 - 31.05.2010

Link

<http://p3.snf.ch/project-116016>