

Historical Heritage: A study to conservation

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Abstract. Considering ancient monuments and historical buildings, it seems that these mortars have proved to be durable and reliable materials. The restoration and maintenance of old renders is one of the key aspects of correct rehabilitation practice. The ideal course of action is to replace the damaged material by a material with compatible characteristics. The study in development presents the chemical, physical and morphologic analysis performed for ancient air lime mortars belonging to historical monuments: Santa Marta Fortress in the coast line Lisbon-Cascais dated from XVII century and Defense Wall of Lisbon dated from XI century, which layout could be associated to roman period. It is important to underline that the studied samples of ancient portuguese air lime mortars, have been submitted during centuries to very severe maritime environment that includes daily cycles of wet/dry, wind, friction and the constant presence of salts, generally aggressive. However, they show very good performance and conservation state, unlike most of the new air lime mortars, which are generally considered weak, not very durable, materials. This work is included in a study intending to determine key factors to the durability of these ancient materials in presence of water. Visible reaction rims around some aggregates suggests the occurrence of pozzolanic reactions between aggregates and the lime binder that creates neoformation products, such as calcium-silico-aluminates, which seems be, besides the pores filling, the responsible for the resistance and cohesion of these ancient mortars submitted to aggressive humid environments.