



## Façade mapping and data storage of historical structure ashlars

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The aim of the introduced research is to generate the methodology for the research and maintenance of facing ashlars of historical structures. As a rule, the natural building stone of historic monuments is subject to various types of deterioration and damages mostly due to weathering processes. Preferably, the damaged stone ashlars should be replaced by the natural material of the same lithological composition, of an appropriate durability and the same or similar appearance. If the quarrying of the original stone is not prospective, the quality of alternative rock is moreover not only a crucial condition, but also the fact that its use will not change the façade appearance. The methodology comprehensively summarizes technical, technological and monumental demands. It is oriented on the definition and verification of selection criteria of the most appropriate alternative stone recommended for building or restoration purposes.

Before the restoration it is methodologically necessary to generate the ashlars façade plan based on digital photographic procedure (real scale) and data processing in GIS, to assess the lithology of the façade stones and to perform complex laboratory tests (when samples taking is possible) to determine physical-mechanical properties, as UCS, absorption capacity, coefficients of weakening and freezing, etc. aiming at the stone durability.

The detailed survey of the replacement building stone has to be methodically identical with the research of facades stone properties. The comparative analysis of the appearance, properties and durability of stone is necessary, as well.

Using such methodology it will be possible to design the adequate engineering-historical research and propose the optimal procedure for the restoration of concrete historical structure. Such a comprehensive assessment of original and alternative natural building stone contributes to the protection against undesirable interventions in the restoration of historical monuments.