

LIDAR DATA AND METRIC ARCHIVES TO HIGHLIGHT SUFFERINGS IN HISTORICAL BUILDINGS

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ABSTRACT

Historical buildings are subjected to several stresses and traumas especially due to their reuse and because of they are appointed to new building functions even to guarantee the staying alive of the constructions. Conversion and reuse have to ensure both the secure fruition of built heritage and the compatibility and sustainability for each built structure and its characters.

The survey aimed to the conservation takes care to analyze every particular sign of the construction, in order to allow the elaboration of an history of the building through the recording of various steps of aggregation and stratification; all of that consists in the definition of geometrical features, the structural and material analyses, and than, the collection of data clarifying every decay manifestations.

The conservation and management of cultural heritage are dynamic and complex processes supporting decisions, that is going to condition the building future for physical and functional aspects and for social and economic feedbacks. All these reasons make urgent the improvement of information systems collecting different and sharable highly detailed data.

On the side of metric surveying and documentation of such historical buildings, the request of 3D data acquisition is increasing in order to select and retrieve suitable information in timely phases. On the side of survey results delivery, the variate ensemble of vectorial drawings, orthoprojections, surface models in raster or vectorial format, are esteemed to be useful to the reading and reporting of formal, stylistic and constructive features of cultural heritage.

The organization of systems able to offer different levels of counselling of referenced data, underlining different value of diverse origins or elaboration of collected data have to be deepen.

In this paper we are going to present firstly a metric survey conducted through integrated LIDAR and photogrammetrical techniques, aimed to highlight problems and sufferings above mentioned, made complex by technological equipments and installations related to modern use of building. After that we will discuss a proposal to connect data and elaborations to the components of architectural elements in their historical stratification, with the aim to offer to the users the ability to retrieve different detailed information.

The sample is a portion of the Valentino Castle, a queen residence belonging to Savoy age, recently inscribe in the Unesco heritage list and nowadays the venue of Faculty of Architecture of Politecnico of Torino.