

UN APPROCCIO METODOLOGICO AL TEMA DELL'INTEGRAZIONE DEGLI IMPIANTI NELLE ARCHITETTURE STORICHE: DALL'ANALISI DELL'ESISTENTE ALLE PROPOSTE DI SOLUZIONI COMPATIBILI PER L'ADEGUAMENTO E IL RIUSO

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Abstract

In the architectural heritage the introduction of new functions is an essential and complex theme. A multidisciplinary approach, calibrated on the fragility and specificity of each context, is required in order to introduce compatible and effective technologies in the project, starting from the theoretical reflection of the restoration with the aim of reaching the greatest possible integration.

The paper proposes a methodological approach related to the use of historical-artistic assets, based on an active dialogue between architectural restoration and building physics, aimed not only at the adaptation and strengthening of uses for the cultural fruition, but also at the introduction of new and compatible functions. Considerations derive from a recent *in progress* research of the Authors, concerning the theme of building/plants integration in the context of the Residences of the Royal House of Savoy - Unesco serial site, in particular for the Racconigi castle, Valentino castle, Govone castle and Palazzo Madama. These cases are representative of extraordinary architectural and decorative materiality. Moreover, they conserve widespread and valuable traces of plants that have now historical values. These traces have been mapped and analysed in their material and technological characteristics, as elements to be preserved and enhanced, in a difficult balance between conservation needs and energy performance improvement goals.

The aim of the paper is to explain the methodology applied, focussing on the topic of air conditioning and lighting systems integration, and assigning them functional, scenographic and enhancement contribution. The analysis phase is identified as a crucial step, aimed at evaluating the possible recoverability and current functionality of the old plants or, at least, the role that they, with the related shafts and ducts, could still represent in order to reduce the impact of new installations and their indispensable connections on ancient walls. The knowledge of the existing plant technologies is combined with the critical evaluation of the *demanding framework*, articulated between conservation and fruition requirements and user's needs. Therefore, the building requirements of environmental comfort, safety, usability, integration and flexibility, minimum space envelope, control of the initial and management cost, and the different types of plants have to be subject of a detailed analysis, in relation to compatibility with the ancient building.

The complexity of the theme represents a highly incisive cultural and technical stimulus for the designer and induces a continuous work of re-defining design solutions, that are often exclusive and *ad hoc*, in order to propose sustainable solutions that consider energy and environmental aspects and, primarily, a cultural point of view. **Keywords:** *historic building, reuse, Residences of the Royal House of Savoy, plants, lighting, multidisciplinary approach*