

ECONOMIC ASSESSMENT OF THE INTERNAL INSULATION OF HISTORIC BUILDINGS USING THE “COST OPTIMALITY” APPROACH

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ABSTRACT

The Directive 2010/31 UE (EBPD) introduces the Nearly Zero Energy Buildings linked to cost optimality, where energy benefits are closely linked to economic benefits. This methodology is applicable both to new and existing buildings, but although it has been largely applied to existing buildings, there are only few examples on historic buildings. Contrariwise, it would be appropriate to develop a specific methodology for the economic valorization of heritage buildings, considering also the preservation of their historic values. On the other hand, it could develop shared information and examples of historic “reference buildings”(i.e. on discount rate, type of proper methodology between financial or macro-economic schemes). For this reason, the case studies become an important starting point to create common typological and repeatable models for applying this methodology. This research aims at evaluating the economic benefits of energy retrofit of a traditional historic masonry, using the "Cost Optimality" methodology. The research is structured into the following parts: (i) assessment of the heritage value; (ii) definition of the type of masonry; (iii) selection of the insulation systems; (iv) assessment of the energy benefits related to the insertion of various insulation materials; (v) evaluation of the Life Cycle Costing; (vi) evaluation of the optimal insulation performance and cost-effectiveness; and (vii) comparison of energy consumption and Life Cycle Cost to define the most appropriate interventions for the historic wall.

Parole chiave/Key-words: Cost Optimality, Historic Building, Nearly Zero Energy Building