

ENERGY CONSERVATION IN HISTORICAL BUILDINGS. A METHODOLOGY FOCUSED ON BUILDING OPERATION AND USERS' ENGAGEMENT.

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ABSTRACT

Worldwide, the building sector accounts for 40% of total energy consumption. In Europe, where more than 14% of buildings dates from before 1920, reaching over 50% in some cities, historical buildings are fundamental to reach the current ambitious emissions' reduction targets. Today, the energy retrofit of historical buildings is relevant not only from an environmental and economic point of view; it is also necessary to adapt these buildings to the current liveability standards, provide adequate indoor environmental conditions for artworks preservation and maintain the buildings as living evidences of the past. So far, architectural heritage preservation and energy efficiency have often been seen as mutual exclusive purposes, probably because the majority of actions usually proposed to enhance energy performances of buildings require interventions on the architectural fabric and surfaces, undermining the building's historic evidence. Instead, energy efficiency in historical buildings should be pursued adopting actions with the lowest impact possible on the building fabric. This paper presents a methodology investigating the potentialities energy performances' enhancement by acting only on building use and operation, so that the fabric can be maintained as much as possible as the original evidence. Besides the methodology's theoretical phases, the article describes its application on a real case study in Italy.

Key-words: Historical buildings, Building Operation, Energy retrofit, Thermal comfort.