

Integrated approaches for the improvement of the structural and energy performance of existing buildings

Linda Giresini
University of Rome Sapienza

The energy and structural performance of buildings is a relevant issue in a society focused on the reduction of environmental and economic impact at a global level. With this purpose, the need of proposing methodologies to assess integrated interventions arises. That aspect plays a crucial role in terms of sustainability, as the impact of retrofitting solutions is generally strong in terms of both economic and environmental levels. This seminar presents the recent developments of a methodology capable of quantitatively assessing the improvement of seismic and energy performance of masonry buildings through integrated interventions. Common and innovative retrofitting strategies are considered for real cases of buildings, discussing the usefulness of seismic and energy performance indicators, in relative and absolute terms. Practical tools, such as isocost and isoperformance curves, are explained as effective and simple means to select the best interventions conceived to improve the structural and energy performance of the building. In this process, the perspective of Life Cycle Thinking is also included: the impact of integrated interventions is analyzed taking into account the Life Cycle of the intervention itself including installation, use and demolition phases. Finally, the extent at what it is correct to neglect LCA in the analysis of integrated approaches is discussed.