

Retrofit strategies for existing structures: recent advances

Manuela Scamardo, Politecnico di Milano manuela.scamardo@polimi.it

Pietro Crespi, Politecnico di Milano pietro.crepi@polimi.it

Marco Zucca, Università di Cagliari marco.zucca2@unica.it

Enrica Vecchi, Università di Cagliari enrica.vecchi@unica.it

The rehabilitation and conservation of existing buildings and infrastructures, particularly the historical heritage, have gained more and more interest from the scientific and engineering communities. These structures have been often designed without considering the modern seismic design provisions. Indeed, the damage recorded after the most recent seismic events has proved their high vulnerability with respect to the horizontal actions.

The preservation of the built heritage is of paramount importance to guarantee human safety, avoid significant economic losses and protect the historical and cultural value of existing structures.

There are many reasons for which strengthening interventions may become necessary: poor shear resistance under lateral loads, weathering, foundation or soil settlements, aging, degradation phenomena, or increased structural demand.

Recent post-earthquake reconstruction processes highlighted the need for new, practical, and cost-effective seismic strengthening solutions. Several techniques have been proposed, but further research is needed to improve their effectiveness, develop new applications, new design procedures and new techniques in order to meet the demands coming from construction industries and seismic designers.

The session wants to explore innovative methods and strategies to retrofit and repair existing structures, including masonry, concrete, steel and timber structures.

The session encourages the submission of research papers presenting new findings in the field of, advanced strategies for reconstructing complex geometries, computational and numerical modelling, experimental testing, analytical characterization, practice-oriented design methods, case studies or practical applications of retrofitting interventions for existing structures.