

Special Session Title:

Life Cycle Thinking: integrated renovation strategies targeting safety and sustainability of existing buildings

Description:

The need to renovate the existing building stock is broadly acknowledged nowadays. Not only is the seismic risk reduction particularly urgent, but also specific measures must be undertaken to improve sustainability of the existing constructions, as highlighted by European Union Policies. Structural and energy retrofit are usually carried out separately, but the question arises whether sustainability be really pursued if energy saving measures on vulnerable buildings are completely lost after an earthquake and, most importantly, if preservation of human life is not guaranteed. On the other hand structural solutions are often selected based on their sole performances, regardless of their environmental impact; nor attention is paid during the design stage to the “end of life” scenario: the structural system is demountable and reusable or recyclable?

The proposed special session aims at fostering the concept of “integrated renovation” of the existing building stock, which can be pursued through a holistic renovation approach contextually targeting resilience, safety, and sustainability following a Life Cycle Thinking perspective. Maximization of the performances and minimization of environmental impacts and costs throughout the building life cycle is a remarkable challenge and requires new design strategies and new solution sets. It is worth noting that the approach also applies to new buildings where both structural and sustainability issues could be tackled synergistically.

ORGANIZERS

The proposers are part of a perspective working group (proposal for the activation submitted to EAEE) on: “Combined seismic and environmental renovation of existing buildings”

We believe the proposed topic fully complies with the scope of the 3ECEES and represents both a frontier in the earthquake engineering field, but also an opportunity to effectively foster safety and resilience of the existing building stock.

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