Session ID: ASR-2

Title
TIMBER BASED SEISMIC RETROFITTING SYSTEM FOR EXISTING STRUCTURES

Convenors
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Description
There has been an increasing interest in using timber for the seismic retrofitting of buildings. The use of wood has two main advantages: increasing the capacity and stiffness of the structure and, not secondarily, enhancing its energetic performance. Building construction materials account for around 40% of all global primary energy consumption and Greenhouse Gas emissions (GHG). Therefore, one increasingly favoured GHG reduction policy, especially in forest resource-rich countries, is restoring timber as a general-purpose primary construction material for seismic retrofitting and new buildings. Timber, particularly Engineered Wood Products like Cross-Laminated-Timber (CLT), is transforming the capabilities of wood as a construction material, enabling architects and engineers to develop innovative retrofitting approaches. Using timber can have many advantages, mainly related to the high strength-to-mass ratio. The application of wood in seismic retrofitting spans from reinforced concrete structures, where timber panels can replace existing infills or masonry structures for either floor or wall stiffening. Not secondary, retrofitting sub-components (viz. roofs) using timber elements or hybrid steel-timber systems can be structurally efficient, cost-effective, time-saving and environmentally friendly. The growing significance of this seismic retrofitting tendency is confirmed by numerous research papers focused on developing a retrofitting system combining energy efficiency, seismic resistance, financial feasibility and other social benefits. This technical session will collect all relevant contributions, both theoretical and experimental and case studies, on using timber for the seismic retrofitting of existing buildings. Furthermore, this technical session will highlight the various solutions conceived during the last years, emphasising the different connection systems devised to guarantee an optimal structural coupling between timber and the existing structure.

Invited Speakers
C. Mazzotti [3], F. Barbagallo [4], V. Rajcic [5], C. Contiguglia [6], M. He [7], C. Demartino [8], A. Iqbal [9], D. Pasca [2], Y. De Santis [1], C. Loss [10]

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