Session ID: ASR-10

Title
DESIGN AND RETROFITTING WITH POST-INSTALLED SOLUTIONS

Convenors
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Description
Every retrofitting requires a certain connection between the new strengthening element and the existing structure. For obvious reasons, the connections must be formed using post-installed solutions such as post-installed fastenings (anchorages), post-installed reinforcing bars, gluing to concrete etc. Connections play a key role in every structural construction system. Not only they are required to behave consistently with the hypotheses related to the main structure behaviour in terms of both forces and displacements, but also they are often crucial in determining the limits of the same overall structural behaviour.

Often the seismic performance of a retrofitted structure is governed by the performance of the connection itself. However, in retrofitting works, performance requirements on connection are seldom defined, especially in relationship with the global behaviour of the retrofitted structure. Designing a suitable post-installed connection for a given structure is rather challenging and frequently, the standard design procedures applicable for fastenings are insufficient for the purpose. On one side, the anchorages are subjected to high demands of cycling forces and large cracks that may also open and close in phase with the loads. On the other side, the limited structural dimensions (beams and columns sizes) restrict the resistance offered by the anchorages in terms of forces.

The technical session aims to collect contributions regarding new research based solutions, design models for post-installed solutions with a focus on seismic retrofitting as well as experimental and numerical results investigating their behaviour under seismic action. The scope of the session is focussed on (not limited to): Innovative retrofitting solutions using post-installed fastening solutions, new seismic testing procedures, experimental and numerical studies, seismic performance of retrofitted structures and more.

Invited Speakers
N. Randl [3], C. Hsieh [4], E. Gad [5], C. Hervé [6], M. Lamperti [7], A. Varma [2], K. Nagai [8], K. Bergmeister [9], G. Metelli [10], R. Wan-Wendner [11]

Affiliations
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