

**Session ID:** ASR-1

**Title**

SEISMIC ASSESSMENT AND RETROFITTING OF RC PRECAST BUILDINGS

**Convenors**

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**Description**

It is known that reinforced concrete (RC) precast buildings suffered from extensive damage following recent strong earthquakes around the world. Especially for structures not specifically designed to resist lateral loads, seismic rehabilitation is crucial to extend their nominal service life and help reduce the seismic losses. Along with traditional retrofitting techniques, such as concrete or steel jacketing of structural members, innovative strategies are being increasingly used in recent years for improving the seismic response of this construction system. The newly introduced solutions include devices that can dissipate the ingoing seismic energy and are characterised by the replaceability after a seismic event and the dry installation.

The current literature still presents gaps about numerical modelling, seismic performance, experimental data and technological challenges related to seismic assessment of new and existing RC precast buildings, and their retrofitting.

Also, despite the relevance of sustainability issues related to the reduction of economic and environmental impacts (in terms of earthquake-induced losses) allowed by the retrofit, the benefits of rehabilitation strategies to the life cycle seismic performance of RC precast structures, as well as their own life cycle environmental impact, have not been fully investigated yet. In order to close these gaps, one of the goals of this technical session is to provide a comparative evaluation of seismic performance and environmental impact for reinforced concrete precast buildings, in their as-built and post-retrofit configurations.

Expected contributions to this technical session should focus on the latest advancements in the field of precast constructions, mainly related (but not limited) to: (a) seismic assessment of new and existing RC precast structures; (b) seismic retrofitting of precast structures employing traditional and innovative (e.g. dissipation-based) solutions; (c) sustainability issues and environmental impact.

**Invited Speakers**

H. Rodrigues <sup>3</sup>, A. Sarkis <sup>4</sup>, H. Guerrero <sup>5</sup>, B. Dal Lago <sup>6</sup>

**Affiliations**

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