

**Session ID:** ASR-3

**Title**

RISK-BASED ASSESSMENT AND RETROFITTING: SYNERGIES BETWEEN SEISMIC, ENERGY AND ENVIRONMENTAL BEHAVIOR

**Convenors**

A. Tsiavos <sup>1</sup>, R. Monteiro <sup>2</sup>, R. Bento <sup>3</sup>

**Description**

This Technical Session aims to provide a research forum for presenting and discussing recent findings and developments in risk-based, integrated or combined assessment and retrofitting of different types of existing buildings, considering the synergy between their seismic behaviour, their energy performance, and their environmental impact.

Many buildings in Europe and worldwide do not comply with modern seismic code provisions and are energy deficient. Depending on the location and combination of seismicity and climate, the investment required for retrofitting these buildings cannot be easily justified based on the benefit obtained through their seismic risk reduction or energy performance improvement alone. Moreover, several seismic structural retrofit solutions are characterised by high costs and carbon emissions. Therefore, there is an ever-growing need for holistic and synergetic approaches in assessing and retrofitting buildings, considering their seismic behaviour, energy performance, and associated environmental impact.

The aim of this Technical Session is thus to attract leading research groups presenting the state of the art in this field, favouring the dissemination of their findings, related to the analytical, numerical, or experimental investigation of synergetic research or practice-oriented assessment methods or retrofitting strategies towards the development of sustainable and resilient communities.

Specifically, the topics to be covered, but not limited to, include:

- risk-based integrated assessment frameworks for single buildings or large-scale applications;
- integrated retrofitting or construction techniques;
- practice-oriented approaches for integrated assessment and retrofitting;
- life-cycle based integrated analysis and evaluation studies;
- numerical or experimental investigation of novel, sustainable materials and sustainable retrofitting methods

**Invited Speakers**

A. Belleri <sup>4</sup>, I. Bal <sup>5</sup>, E. Smyroy <sup>5</sup>, M.V. Requena-Garcia-Cruz <sup>6</sup>

**Affiliations**

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