

Session ID: CMS-5

Title

SEISMIC DESIGN OF MODERN MASONRY: INNOVATIVE SYSTEMS, EXPERIMENTAL EXPERIENCES AND CODIFIED CRITERIA

Convenors

P. Morandi ¹, K. Beyer ², C. Butenweg ³

Description

The realization of new load-bearing masonry buildings all over the world is far from being marginal, even in areas with considerable seismic hazard, since it is still a competitive choice for low-rise buildings from many points of view, not necessarily all related to seismic/structural performance. However, there is still a rather common opinion that the use of structural masonry for newly designed buildings in seismic areas is unsafe since most collapses in recent earthquakes occurred on existing URM non-engineered structures. Recent earthquakes in Italy showed, conversely, that recently built code-conforming low-rise masonry buildings behaved better than expected, despite maximum PGA values ranging between 0.20-0.30g.

Therefore, the investigation of the effective seismic behavior of modern masonry for a safe design of buildings without irrational conservatism is still necessary and prominent. Moreover, it is crucial to keep pushing on the development of innovative seismic-resistant masonry solutions, which may also include aspects related to energy efficiency and sustainability in terms of reuse and recycling.

This session aims to discuss the recent advances in the field of the seismic response of load-bearing modern masonry (unreinforced, reinforced, confined) elements and buildings from both the experimental and the numerical perspective, and to present innovative masonry systems. Contributions for the improvement of codified criteria for design are also suited in this session.

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

- Innovative masonry systems
- Experimental studies on masonry elements (e.g., piers, spandrels) and assemblages
- Advance numerical methods on masonry elements and assemblages (test simulation, numerical experimentation of seismic tests)
- Seismic response of modern masonry buildings after earthquakes
- Contributions for codified criteria in seismic design (e.g., drift limits, q-factors, methods of analyses).

Invited Speakers

S. Brzev ⁴, A. Menon ⁵, F. Mosele ⁶, M. DeJong ⁷, S.M. Alcocer ⁸

Affiliations

¹ EUCENTRE Foundation, Pavia, Italy, ² École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, ³ University of Aachen, Aachen, Germany, ⁴ University of British Columbia, Vancouver, Canada, ⁵ Indian Institute of Technology of Madras, Madras, India, ⁶ Consorzio Poroton Italia, Verona, Italy, ⁷ University of California Berkeley, Berkeley, USA, ⁸ National Autonomous University of Mexico (UNAM), Mexico City, Mexico