

**Session ID:** CMS-1

**Title**

RC STRUCTURAL WALLS: ADVANCES AND FUTURE CHALLENGES FOR DESIGN, MODELLING, TESTING, AND CONSTRUCTION

**Convenors**

J. Almeida <sup>1</sup>, R. Hoult <sup>1</sup>, A. Correia <sup>2</sup>

**Description**

By 2060, the world population is expected to rise beyond 10 billion, and the number of buildings is estimated to double. A large proportion will be mid- and high-rise buildings employing reinforced concrete (RC) wall or wall-equivalent systems to resist lateral actions, primarily from wind and earthquakes. In this context, progressively more reliable performance objectives will require more stringent, dependable, and clear Design and Assessment procedures. The latter can be based on a variety of Modelling Approaches compatible with engineering practice, and whose developments have been significant over the last decade. They show clear progress on the response prediction and simulation of wall units under often-complex loadings in large-scale Testing Programs, which use new technology to measure the global and local response of the specimens. New Materials for Construction are also being explored, either with the purpose of improving wall performance, or because they are more environmentally friendly.

The technical session will join several renowned international experts on RC walls to share the most recent advances on the above topics, and to discuss future challenges. The convenors of this session propose to replace the classical conference presentation format by a round-table meeting. Contributors will present for a maximum of 8 minutes, concluding with a minimum of: (i) three key aspects identified as lacking or poor in current literature, (ii) two questions to the audience, which will turn into discussion points for up to 7 minutes.

This technical session will: (i) borrow from an ongoing special issue in the BEE on the same theme, for which the convenors are guest editors, (ii) present the results of an international blind prediction competition on the dynamic response of two 40-ton U-shaped walls, (iii) work as a forum to discuss the performance of RC wall buildings during the destructive Kahramanmaras earthquakes, comparing it with other structural typologies.

**Invited Speakers**

M. Fardis <sup>3</sup>, D. Palermo <sup>4</sup>, K. Orakcal <sup>5</sup>, J. Maffei <sup>6</sup>, D. Lehman <sup>7</sup>, T. Isakovic <sup>8</sup>, S. Pantazopoulou <sup>4</sup>, L. Lowes <sup>7</sup>

**Affiliations**

<sup>1</sup> Université catholique de Louvain, Louvain-la-Neuve, Belgium, <sup>2</sup> National Laboratory for Civil Engineering, Lisboa, Portugal, <sup>3</sup> University of Patras, Patras, Greece, <sup>4</sup> York University, Toronto, Canada, <sup>5</sup> Bogazici University, Istanbul, Turkey, <sup>6</sup> Maffei Structural Engineering, San Francisco, USA, <sup>7</sup> University of Washington, Seattle, USA, <sup>8</sup> University of Ljubljana, Ljubljana, Slovenia