Editorial

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This issue contains five articles written by authors hailing from Australia, China, Iran, Ireland, Portugal, Spain, Sweden, Switzerland and UK. The articles address steel, concrete and timber structures that are subjected to a variety of loading. Both experimental testing and numerical modelling are considered.

The first article (Rezvani and Ronagh, 2015) considers the response of a seismically designed generic four-storey moment resisting frame structure subjected to travelling fire loading. The influence of fire size and the nature it travels across a floor plate is investigated using finite-element analysis. The fire size is found to influence the collapse time of the frame. In addition, the columns of the frame were found to be subjected to elevated levels of load on account of load redistribution arising from the travelling fire.

In the next article, McCrum and Staino (2015) report an experimental damage detection technique for structures that utilises a vibration-based seismic detection strategy. The level of interstorey drift enables the buckling and yield damage of a single-storey concentrically braced frame to be investigated. Buckling and yield displacement threshold limits are also identified. The damage detection technique has the potential to be used to locate damage in structures for structural health monitoring purposes.

The third article (Kong *et al.*, 2015) reports a finite-element investigation of the seismic behaviour of concrete frames with masonry infill walls. A three-dimensional model allows both in-plane and out-of-plane behaviours to be investigated. The model can capture the sliding failure mode of mortar joints. Numerical predictions of strength, deformation and failure modes correlate well with experimental measurements. In addition, an interaction curve between in-plane and out-of-plane loading is generated.

In the fourth article, Khoshnoudian *et al.* (2015) report an investigation on the numerical modelling of a complete soil and structure system. Soil–structure models of five-, 15- and 25-storey structures are investigated in order to establish the demand imposed by multi-storey buildings on shallow foundations. For structures assumed to be fixed at the base, the critical storey level is found to be located at the first storey and this indicates that the system is primarily influenced by the fundamental mode. For some load cases though the critical storey occurs at the upper storeys of the structure.

Figure 1. Arches with set-up used for collapse test

The final article by Fernández-Cabo (2015) provides details of experimental and numerical work associated with the assessment of vertically laminated historical planked timber arches (Figure 1). Such arches, which were built in the seventeenth and eighteenth centuries in Latin-America and are still standing today, are historically important. The study reveals a key problem with the structural system to be poor transference of bending moment along the timber planks. This in turn limits the overall load-bearing capacity of the arches. Additional work on connections is considered to be of importance.

Readers are reminded that the journal publishes its most recent articles Ahead of Print on the Virtual Library homepage of the journal: <http://www.icevirtuallibrary.com/content/serial/stbu>.

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