Editorial

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The present issue contains five articles written by authors who present results on seismic structural behaviour, concrete structures and glass facades from their research activity in Iran, USA, China, Portugal and Italy. Numerical and analytical modeling is considered in all of these studies and the respective results are compared in certain cases with experimental data.

The first article by Fallahian *et al.* (2015) considers the torsion in the seismic behavior of base-isolated structures owing to two simultaneous horizontal components of ground motion, the structures being considered to be shear building structures idealised using a spring and a concentrated mass and the seismic isolation system a bilinear inelastic model. The performed non-linear dynamic analysis confirmed that a structure with bidirectional eccentricity possesses greater dynamic torsion compared to a structure having unidirectional eccentricity, and even a small eccentricity causes significant dynamic torsion-related static torsion, in particular in torsionally stiff base-isolated structures.

In the next article, Rahmani-Samani *et al.* (2015) propose an improved direct displacement design method for frictional damping-based structural systems composed of beams and columns connected each other by simple connections and bracing systems equipped with frictional dampers. Non-linear transient analysis shows that under seismic loading, no material yielding occurs in the system and thus, no component replacement is needed other than re-centering of the dampers. Analysis results also show that all studied cases satisfy the intended structural performance objectives.

The third article (Hedayat *et al.*, 2015) discusses the efficiency of simple and multi-sinusoidal voids at the beam web area to enhance the ductility of the post-Northridge connections. In particular, a parametric numerical study on more than 440 specimens of different design parameters is performed to determine the most efficient configuration of such voids when both adequate strength of connection and ductility are achieved. Results with reference to the effectiveness of optimum size single void at the beam web for beams with overall depth up to 750 mm and length:depth ratio equal to or greater than 11.5 are presented, whereas for deeper and shorter beams adequate strength of connection and ductility is achieved by using web-stiffened or non-web-stiffened specimens with either multiple same-size voids or multiple different-sized voids, respectively.

In the fourth article, Huang *et al.* (2015) propose a theoretical model derived from the theory of elasto-plasticity, non-linear elasticity and material properties for the analysis of the behaviour of axially loaded concrete-filled steel tube (CFST) columns to study their mechanical mechanism under axial compression. Load-displacement relationship, steel tube stress, performance of the confined core concrete and interaction between the two structural materials were studied, and the obtained results were compared to experimental data. The confinement significantly affects the behaviour of the core concrete, and the respective results relating the confining pressure and the confined concrete response are presented. The study indicates that the axial stress-strain relationship of concrete under constant confinement is not appropriate for the core concrete in CFST specimens.

The final article by Amarante dos Santos *et al.* (2015) investigates the dynamic behaviour of cable-supported glazing facades subjected to medium-level air blast loads. By means of a geometrically refined and simplified lumped-mass finite-element numerical model, the major effects of the design blast load in the principal facade components are preliminarily assessed showing that both glass panels and the cable system can efficiently absorb the incoming impulsive loads typically involving excessive deflections and tensile stresses. The authors propose an innovative active control system based on a proportional-integral-derivative control algorithm where tension is the control variable, which can efficiently mitigate the aforementioned effects of the blast pressure on the glazing system.

I hope you will find these articles stimulating and informative. It should be reminded that related comments and discussion are welcome as usual, and that *Structures and Buildings* publishes its most recent articles Ahead of Print on the ICE Virtual Library homepage of the journal: <http://www.icevirtuallibrary.com/content/serial/stbu>.

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