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Editorial

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This issue of *Structures and Buildings* nicely combines small-scale analysis of structural elements and studies on large-scale structures, as well as other traditional and modern topics. In particular, structural elements involved in prestressed structures, infills of traditional reinforced-concrete (RC) buildings, plastic hinge effect and aseismic design, construction stage analysis and structural health monitoring issues are studied in the papers published here. Design, experiments and implementation are presented in the papers of this issue, including experiments in the laboratory and in situ using laser scanners, accompanied with finite-element and nonlinear analyses. I am happy to present this material, which represents the broad variety of topics covered by the journal. I believe that it will attract the interest of the scientific and professional communities, and continue the tradition of publishing important papers in this medium.

This issue contains papers that have passed the usual rigorous peer review procedure adopted by the journal and contribute to the following areas of knowledge.

The first paper deals with structural elements used in prestressed concrete bridges (Cao *et al*., 2016). In externally prestressed concrete bridges, the prestressed tendons are connected with the main structure by anchors and deviators, which are subjected to complex stress concentration. By using T-shaped specimens that represent the anchor blocks, an experimental investigation has been performed that evaluates the effect of shear span–depth ratio and longitudinal reinforcement ratio on the shear behaviour of anchor blocks. The experimental ultimate loads are compared with the calculated results from two design methods and relevant conclusions are reported.

The second paper studies the influence of masonry infill on the mechanical behaviour of RC frames (Kumar *et al*., 2016). The characteristics of low-quality solid concrete block infills and their influence on the response of RC frames under lateral loading is of interest for the analysis or the reinforcement of existing buildings. Kumar *et al*. first investigated the masonry infill separately in order to evaluate its strength characteristics. Subsequently, experimental data, obtained from full-scale single-bay frames in the form of load–deformation curves, indicate that even with the presence of low-quality infill panels, both the strength and stiffness of the RC frames were greatly enhanced.

The third paper investigates a novel design concept based on using multiple plastic hinges for the aseismic design of high-rise buildings. Instead of using the classical concept of a single plastic hinge at the base of the wall to control response of high-rise RC core wall buildings subjected to earthquakes, a multiple plastic hinges concept is proposed by Ahmed (2016). By choosing the locations of the multiple plastic hinges using elastic modal decomposition analysis and calculating the seismic demands using non-linear response history analysis, a 40-storey case study building demonstrates the effectiveness of the proposed method in terms of reduced seismic shear and moment demand at the base of the wall.

A procedure for the support of stage analysis of concrete structures is presented in the next paper by Ha and Lee (2016). Constructing a high-rise building requires careful monitoring in order to guarantee that the result is acceptable and near to the nominal assumptions of the architects and engineers. A method of construction stage analysis was developed to predict the deviation from vertical induced by shortening, including the time-dependent effects of concrete-like creep and shrinkage. The method has an extended range of applicability, since it is combined with a finite-element analysis. An application on a 58-storey RC building is presented, together with a field survey using a three-dimensional laser scanner that demonstrated a satisfactory agreement of predictions.

The last paper by Alves *et al*. (2016) deals with structural health monitoring. Structural health monitoring is an important research topic of interest for modern societies, owing to the presence of either ageing infrastructures or modern, complicated new structures. A novel symbolic data analysis coupled with classification is proposed for structural health monitoring and damage detection in civil engineering structures using raw data from in situ measurements. The method is applied on experimental data as well as on two existing bridges with encouraging results.

I hope that you will find these articles useful to your work and I invite you to contribute to the discussion by sending your comments to the journal. Furthermore, beyond the classical printed and electronic versions, *Structures and Buildings* publishes the most recent articles online ahead of print on the Virtual Library homepage of the journal: http://www.icevirtuallibrary.com/toc/jstbu/current.

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