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Editorial

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This issue of *Structures and Buildings* consists of six technical papers. Research investigations concerning strengthening of reinforced concrete frames with engineered cementitious composite panels, the benefit of studs in steel-plate–concrete walls with bending and shear, strengthening of rectangular steel columns with angles, flexural capacity of reinforced concrete members, flexural stiffness of concrete-steel beams under negative moment and sea sand recycled concrete filled steel tube under axial compression are covered.

The first paper by Ayatar *et al.*, (2020) presented an investigation of a new strengthening technique, conducted by bonding engineered cementitious composite (ECC) precast panels onto infill walls. The authors carried out tests of three-storey, three-bay, half-scaled frames with the central bay having hollow clay brick infill walls concerning termed bare frame, infilled frame and strengthened frame. Based on the experimental results, the authors concluded that the application of ECC panels significantly increased the frame strength and stiffness while allowing the system to have a displacement ductility of about four.

In the second paper by Lim *et al.*, (2020) the authors investigated the benefit of using studs in steel-plate-concrete walls subjected to bending and shear. An analytical study using non-linear finite-element modelling was conducted to evaluate the capacity improvement of the proposed system. The finite element model was calibrated against experimental results available in the literature where a good agreement was obtained between the results. Afterwards, different types and arrangements of studs were modelled to check the Kepic-SNG criteria application. The authors concluded that, depending on the studs' spacing, a reduction of 33·3% per the standard arrangement area in terms of the required number of studs in comparison to the analysis model with general studs.

The next paper (Zhao *et al.*, 2020) presents an investigation of the rectangular steel columns strengthening with angles substituting intermittent welding for continuous welding through an experimental study. The influences of the use of steel battens, the number of weld zones, the weld length and the intermittent length of the weld seam on loading capacity were examined and a design recommendation was proposed. The authors summarized that an intermittent weld seam could be adopted to reduce costs and increase construction efficiency.

In the fourth paper, the investigation developed by Kotsovou *et al.*, (2020) concerned a comparison of the predicted and experimentally-established behaviour of over 150 reinforced concrete beam specimens. The authors mentioned that around 20% of the specimens exhibited shear failure rather than the expected flexural failure. In order to clarify this issue, it was investigated the possibility that the causes of shear failure reflected shortcomings of the code methods adopted for calculating flexural capacity. Based on an artificial neural network model, better results were obtained when the effects of triaxial stress-strain conditions (which is developed in the compressive zone of such elements at their ultimate limit state) are considered. The authors also have mentioned that the effect of triaxial stress conditions is allowed for through a simple modification of a compressive stress block proposed in the literature.

The subsequent paper by Alkloub and Allouzi (2020) developed a simplified finite-element (FE) model to investigate the flexural stiffness of concrete-steel beams under negative moment. The results from the proposed FE model were compared with experimental data on continuous and simply supported beams reported by other researchers. The authors reported that consideration of the concrete deck longitudinal reinforcement in the modelling of a composite section over negative moment regions is necessary for identifying flexural properties, resulting in better accuracy of the structural analysis outcomes.

In the last paper, Huang *et al.*, (2020) presented an experimental study of sea sand recycled concrete filled circular steel tubes (SSRCFSs) under axial compression. In the tests, two different parameters were considered: sea sand chloride ion (Cl^-) content and recycled coarse aggregate (RCA) replacement percentage. The test results showed that the typical failure mode of the SSRCFSs was similar to that of ordinary concrete filled

steel tubes. Additionally, the authors mentioned that the effect of sea sand Cl^- content on the mechanical behaviour of the SSRCFSs decreased with an increase in RCA replacement percentage.

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