Structures and Buildings
Volume 171 Issue SB4
Editorial
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Proceedings of the Institution of Civil Engineers
Structures and Buildings 171 April 2018 Issue SB4
Pages 271–272 https://doi.org/10.1680/jstbu.2018.171.4.271

Editorial

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This April 2018 issue of *Structures and Buildings* contains seven papers. It covers a broad range of research topics, including: the high-strength concrete columns, fluid–structure interaction, reinforced concrete 'push-off' specimens, tuned liquid damper, bamboo beams, steel shear walls with low-yield-point steel web plates and deep beam reinforced with high-strength steel without stirrups. The authors have completed significant hard work in the delivery of their research and bring useful insight into the pertinent topics. Therefore, the readers can be benefited from the research introduced in this issue.

In the first paper, Khun *et al*. (2018) introduce their work in developing a new equation for rapid design/assessment of high strength concrete columns subjected to unequal end moments. A simplified approach using the equivalent moment factor adopted by existing design codes is used to derive the equation. The non-linear behaviour of the material is also considered. The deviation is based on the rigorous theoretical analyses of 120 simulated strap-confined columns subjected to short-term ultimate loads and unequal flexural moments at the column ends. They validate the proposed equation by selecting different parameters to study their influence on the design of strap-confined columns, such as load eccentricity, longitudinal reinforcement ratio, free concrete cover and volumetric confinement ratio. They conclude that the proposed equation can predict the strength of strap-confined columns with sufficient accuracy, making it suitable for practical design and rapid assessment of such structures.

In the second paper, Zhian Akhavan *et al*. (2018) present some new approaches that could symmetrise the asymmetric eigenproblem when using the finite element analyses to solve fluid–structure interaction. Two new techniques are proposed. For this purpose, new scale matrices to symmetrise the interaction system's eigenproblem are presented. To validate the proposed methods, a fluidstorage tank is analyzed. A sensitivity analysis is also performed to evaluate the accuracy of the proposed techniques, proving its validity and efficiency. They also claim their method demonstrates higher convergence rate and lower analysis time.

In the third paper, Waseem and Singh (2018) develop a Strut-and-tie model to predict the shear capacity in uncracked 'push-off' specimens made with natural concrete and recycled aggregate concrete. The analytical model shows that shear capacity is a function of tie force across the shear plane. This tie force consists of the tensile capacity of concrete in the shear plane and the tensile force resisted by the clamping reinforcement bridging the shear plane. The proposed methodology has been validated by comparing the predicted amounts of clamping reinforcement required to resist reported shear capacities in the literature with the provided values. In this paper, using the proposed strut-and-tie model, they also provide design recommendation for push-off shear capacity.

In the fourth paper, Enayati and Zahrai (2018) introduce their research on variably baffled tuned liquid dampers. Its behaviour is evaluated under near- and far-field earthquakes. The advantage of this type of dampers lies in its ability to change the damping of structural models using an efficient semi-active control algorithm, which acts by changing the angles of baffles. The results show that using these dampers in the semi-active control with an efficient design algorithm for changing the baffle angle improves seismic behaviour of the structural models and reduces the roof displacement. They also exhibit excellent performance under both near- and far-field earthquakes through creating further response reduction under near-field earthquakes.

In the fifth paper, García-Aladín *et al*. (2018) introduce an interesting study on two-culm *G. angustifolia* beams which are a species of bamboo native to South America. Experiments and finite-element simulations are performed to determine the stiffness of this unique type of structural element. Through the investigation, they find that the addition of cement mortar yielded an important increase of stiffness. They also find the need to reformulate the calculation of the effective moment of inertia of multiple-culm bamboo beams, as the value calculated using the parallel axis theorem is too large and yields deflections substantially lower than those obtained experimentally.

In the sixth paper, Shahi and Adibrad (2018) present the finite-element analysis of steel shear walls with low-yield-point steel web plates. The comparative study is made between the low-yield-point steel used for the web plate and conventional steel selected for the boundary beams and columns. The aim was to achieve a system with effective web-plate performance that did not require stiffeners. The effect of system dimensions, beam stiffness, frame column and web-plate thickness on the periodic and uniform behaviour of the system was observed. From the research they find that steel shear walls with low-yield-point steel web plates exhibit better resistance to cyclic loads with more force absorption by the web plate compared to a conventional steel.

In the seventh paper, Dwairi *et al*. (2018) perform non-linear finite-element analyses to model the shear behaviour of deep beams with high-strength reinforcement and grade-60 conventional reinforcement, without stirrups. The finite-element model is calibrated through the experimental results. The shear behaviour of beams reinforced with high-strength steel and grade-60 steel are investigated respectively. They find the benefits of using high-strength reinforcement, compare the shear design provisions of current codes with the results from the analytical model and show that diagonal shear cracking strength is independent of the type of reinforcement. However, they notice that beams reinforced with high-strength reinforcement exhibited higher post-cracking shear strength than beams with conventional reinforcement. Consequently, the conventional Strut-and-tie model is recommended to be suitable for the design of deep beams reinforced with high-strength reinforcement.

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