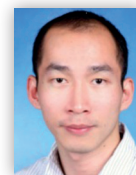


Introduction

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Welcome to the May 2019 special issue of *Civil Engineering* on major and innovative projects in China.

Construction in mainland China has boomed over the last 30 years in line with rapid development of the national economy. Innovative design and delivery of structures and infrastructure is much in evidence, along with widespread application of advanced technology across all built-environment disciplines. This special issue showcases a selection of recent construction projects and innovative construction techniques.

The first paper by Wang *et al.* (2019) describes the innovative design and construction of the new Zhengbei Bridge in Zhengzhou, central China, which is a 10-lane cable-stayed crossing with a single pylon and two 221 m spans. The authors explain how they minimised the impact of building this large expressway bridge on the strategically important rail marshalling yard below by incrementally launching the steel-concrete composite main girder over temporary trestles between rail tracks.

Designing and building the world's tallest transmission towers is then described by Xu *et al.* (2019a). The recently completed 380 m tall towers in the Zhoushan Islands allows high-voltage cables to span 2.7 km over the East China Sea. The detailing of composite members and joints developed for the project is illustrated and new practical design techniques are proposed by the authors.

Our third paper (Li *et al.*, 2019a) gives an overview on the development of modern timber construction technologies in China and their many engineering applications. It covers a variety of case studies, including light timber-frame structures, glued-laminated-timber structures, large-span timber structures and timber-based hybrid structures. Future opportunities and challenges are also discussed.

We then move to a recently constructed world-class library at the China Agricultural University in Beijing. Peng *et al.* (2019a) describe a comprehensive set of quality and safety management systems and methods used during its construction. These include extensive use of building information modelling (BIM) technology and changing the delivery culture from 'quality examination after construction' to 'prevention and correction during design and construction', and from 'results management' to 'factor management'.

Next, Xu *et al.* (2019b) report on the widespread use of large curved lattice-shell structures in China, for which the country has developed world-class engineering expertise. The typical performance of irregular shells is discussed in terms of strength, stiffness, stability and joint stress distribution through a series of case studies.

Peng *et al.* (2019b) then demonstrate the latest tools available to implement BIM technology on various aspects of construction so as to benefit all stakeholders. In particular, the value of BIM for early completion and budget saving due to integration of professional disciplines – including architectural, structural, electrical and mechanical – are discussed.

Our final paper by Li *et al.* (2019b) proposes a novel automatic air-cooling system for newly cast large-scale concrete structures to mitigate the risk of early-age cracking. The system was successfully tested at full scale in trial sections of curved reinforced-concrete walls for a liquefied natural gas storage tank.

We had an unprecedented response to our invitation for papers for this special issue, with around 39 abstract submissions, so it was a challenge to arrive at the seven papers we have selected for publication here. However, other accepted papers will be published in regular issues of *Civil Engineering* as well as other *ICE Proceedings* journals in due course.

I would once again like to take this opportunity to thank everyone who has been involved in producing this diverse and interesting issue. I would also like to extend my gratitude to the tremendous support of all the authors for their dedication and contributions, and for sharing their valuable time with their peers. I hope you find these excellent papers informative and enjoyable.

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