
Editorial

Dino Bouchlaghem

This first issue of 2006 includes papers from a wide range of topics covering the use of Information and Communication Technologies (ICT) for collaborative working in the construction industry and for the delivery of educational programmes; designers' perceptions of precast concrete used as a cladding component; the design of wind barriers to reduce wind velocity in atria spaces within buildings; and the impact of contract documentation used by design consultants on construction rework. Contributions to this issue include authors from the UK, Australia, Hong Kong and the US.

The first paper, by Glass and Pepper, presents a study on the awareness and use of precast concrete as a cladding material on commercial and residential buildings in the UK. The authors interviewed designers who had experience of using this cladding type and other types of stone- and brick-faced concrete. The study established that there are well recognized opportunities for the use of precast concrete cladding (PCC), as well as barriers that impede its use. Among the opportunities are 'buildability', 'quality' and 'speed of erection', while the barriers include 'lead time', initial cost' and 'logistics and craneage'. The authors conclude that in order to improve the market share of PCC, there is a need for further development in production techniques, finishes and sustainability performance, together with better marketing.

In the second paper, Love *et al* investigate construction rework in the Australian construction industry; rework having been identified as one of the most significant factors that affect the cost and duration of projects. At the outset of the study, the authors put forward the hypothesis that contract documentation produced by design consultants was a major cause of

rework in construction projects. For the investigation, they used a questionnaire survey sent to architects, electrical and mechanical consultants, structural consultants, project managers and quantity surveyors. The questionnaire focused on factors that influence the cost of rework, namely, project characteristics, and organizational and project management practices. The authors conclude that the causes of construction rework could not be attributed to a single factor but to a whole array of different variables within the design management process.

The third paper, by Bouchlaghem *et al*, centres around the topic of collaborative working in construction, with a focus on ICT use as an enabler to improve and support processes in the early stages of the design process. After a state-of-the-art review, the authors present the results of a requirement capture survey conducted in collaboration with a number of industrial partners in the form of focused interviews. This was used as the basis for the conceptualization and development of a collaborative working environment, based on Web technologies, that facilitates and supports construction practitioners in their project-centred activities during the conceptual design stage. The main components of the system include client briefing, cost modelling, constraints checking, risk assessment, sketching and drawing, visualization, and communication implemented as an 'integrated' environment. The system was evaluated within an industry context, which showed the system to be a useful tool that offers good potential in improving collaborative working within concurrent conceptual design in construction.

The fourth paper, by Yilmaz and Donaldson, presents a different aspect of design focused on the

testing of the performance of wind barriers used in atria spaces in order to determine the best type to reduce the wind mean velocity within the space. The authors used experimental and analytical methods to model the wind conditions. The analytical method used computational fluid dynamics analysis, while the experimentation used a simulated environment within a wind tunnel and a scaled model of the structure. The two methods were then used to make recommendations on the most suitable type of wind barrier, taking into consideration both aesthetic and economic issues.

Finally, Chung *et al* present a case study of e-learning to deliver construction technology to students. The use of ICT to aid teaching and learning has been a hot topic in the last decade taking advantage of advances in hardware and software technologies. The authors

present the findings of a survey that investigated the feasibility, effectiveness and potential benefits of using ICT to teach undergraduate students the subject of construction technology. The survey used questionnaires distributed to full- and part-time students from Hong Kong Polytechnic University. The results of the survey are in line with and confirm other efforts in the subject that highlight the importance of careful implementation of ICT tools within the learning environment to maximize their benefits. This implementation should consider the context, the topic and the learning styles and habits of students. In this work, the authors report that although the e-learning techniques were found to be useful in this context, the level of acceptance seems to vary from one group of students to another, and the majority of students prefer a combination of e-learning and traditional methods.