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Editorial

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I am writing my first editorial as Chairman of the Editorial Advisory Panel for *Construction Materials* after 5 years of dedication by former Chair, Professor Pete Walker. I graduated from the University of Sherbrooke (Québec, Canada) in 1997 with a PhD and in 1992 with MSc in Civil Engineering after working for few years with National Laboratory for Construction Materials (LPEE) following my MEng degree (Bridges, Pavement and Structural buildings). I then joined University of Paisley (UK) as a postdoctoral research assistant and later as a Lecturer. I worked in 2004–2005 with Ready Mix Concrete in UAE as R&D Manager and Assistant of Technical Manager (production of 1.3 million m^3 of concrete). I am now a Senior Lecturer at Queen's University Belfast. Since 1990, I was involved with self-compacting concrete, rheology, nanotechnology in concrete and I contributed to several RILEM committees related SCC/rheology (145, 188, 197, 205, 209, 233, 228), ACI (236, 237, 238, 552), ASTM C09.47 and worked with other construction materials (steel, bio-based materials, etc.) and waste industrial by-products. I contributed to the first and second European projects on SCC (FP5 & FP6), EPSRC, TSB, KTP, and I just finished coordinating FP7-IAPP-Eirocrete project (2013–2017, over €1 million) on "Development of sustainable, lower carbon, pre-cast concrete infrastructure". I am the chair of RILEM committee TC-266 on "Measuring Rheological Properties of Cement-Based Materials". I have been thoroughly enjoying this academic career though, having authored/co-authored more than 186 scientific papers and 22 books/chapters. I am a Fellow Member of RILEM, Voting member of American Concrete Institute (ACI) and a member of ASTM, fib, ISHMII and Concrete Society.

The journal will continue to publish six issues every year whilst diversifying its content to include a wider range of traditional and non-traditional construction materials (e.g. Bio-based buildings materials, self-healing concrete, composites, earthen ramped, construction materials and technologies for sustainability and energy efficiency, etc.). This journal will internationally continue to disseminate and publish the lasted research on construction materials for the academia, industry, stakeholders and other audience.

This edition of Construction Materials has a wide range of research from multi-criteria section of building materials, state-of-the-art review of simulation of thermal behaviour of concrete by suing finite element analysis, investigation of type of fibres on fibre reinforced self-compacting concrete (FRSCC) and the durability of concrete made with waste materials such as marble dust regarding particularly the carbonation of concrete.

In the first paper Maskell *et al.* (2018) explore the multi-criteria section (MCA) of building materials regarding the optimal performance and minimal environment impact as the rational section is complex due to the multi-functional of materials. The paper summarises four statistical methods used for comparing and ranking different building materials by using ten categories which could be considered during material section, thus material testing characterisation. The paper presents a critical evaluation of these methods following implementation with a reference data set and a recommendation for future development. Adoption of material selection tools are also described in this paper. The models could be developed further by including more complex approaches within MCA and can be used widely in other disciplines in civil engineering.

The second paper by Sfikas *et al.* (2018), from Mott MacDonald Ltd, reports state-of-the-art review on the simulation of thermal behaviour of concrete using finite element analysis. The thermal stresses which can be developed in concrete structures affect the durability properties. The paper reports the 20-year history of successfully using FEA, which demonstrates the benefit of the thermal simulation leading to an improvement of concrete durability and sustainability. In this paper wider adoption of these techniques is recommended by authors with further support by more research and enhancement of standards used.

Self-compacting concrete (SCC) is a highly flowable concrete that can spread into place under its own weight and achieve good compaction in the absence of vibration without exhibiting defects due to segregation and bleeding. Self-compacting concrete is a product of technological advancements, in the area of underwater concrete technology, where the mix is proportioned to insure high fluidity as well as high resistance of washout and segregation. The use of SCC has gained wide acceptance in Japan since the late 1980s for casting congested

members, as well as the placement of concrete in restricted areas where compaction may not be practical and the achievement of durable concrete. Jena *et al*. (2018) reported a comparative investigation on reinforced fibre self-compacting concrete made with different chopped fibres (Basalt, glass and carbon) in the third paper. The fibres in the study were 12 mm long chopped fibres and the percentage of fibres was varied from 0 to 0·3%. The fresh properties of Carbon fibre-reinforced SCC such as filling ability (slump flow, T50, V-funnel) and passing ability (L-box) have been assessed. The fresh and hardened properties were measured and it was concluded that FRSCC made with basalt exhibited the best performance vis-à-vis the optimum dosage, and cost.

Concrete has long been considered as a maintenance-free construction material until durability problems were reported from many parts of the world. Carbonation is one major degradation of concrete structures after chlorides. Carbonation occurs when atmospheric carbon dioxide (CO_2) diffuses into the concrete, interacts with the alkaline hydroxides and forms calcium carbonate ($CaCO_3$). This reaction lowers the pH level within the concrete adequately to allow corrosion of the embedded reinforcement to take place. The fourth paper by Kumar *et al.* (2018) presents the results of an investigation of the carbonation of concrete containing marble dust (MD), varied from 0 to 20%, mixed with water-to-cement ratios of 0·50, 0·60 and 0·70. The depth of carbonation was measured by the pH test and SEM was carried out on the samples. The authors concluded that concrete made up to 10% of MD improved the compressive strength and the carbonation was reduced when MD was increased.

I hope that I will enjoy working with the production team, Rebecca Rivers, Gene Seabolt and Ben Ramster and of course the members of the Editorial Advisory Panel. I am grateful for the tremendous volunteer work of the reviewers and to all the *Construction Materials* authors. Thank you for reading.

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