

Dear Readers,

This edition is guest edited by Prof. (Dr) Shamsheer Bahadur Singh.

Prof. (Dr) Shamsheer Bahadur Singh is a Senior Professor in the Department of Civil Engineering and Dean of Infrastructure and Planning at Birla Institute of Technology and Science Pilani, Pilani, Rajasthan, India. His research interests include composite materials, composite structures and nonlinear finite element modelling for assessing the structural stability, failure and strength of FRP reinforced structures.

Prof. Singh has published more than 205 research articles, 30 book chapters, 14 research reports, 12 books, 2 theses, and 5 patents.

Prof. Singh is fellow of 6 prominent organizations such as Fellow of ASCE, Fellow of SEI, Fellow of ICE (UK), Fellow of CDRI (FCDRI), Fellow of Institution of Engineers (FIE, India), and Fellow of Indian Association for Structural Engineers (FIAStructE). Prof. Singh is also a licensed Professional Engineer (Civil) in the state of Michigan, USA.

We hope you enjoy reading this edition and look forward to your feedback!

Production Editor  
Indian Concrete Journal



Dear Readers,

I am greatly happy to bring out this July 2024 issue of The Indian Concrete Journal containing four technical papers of high values in terms of latest innovations for knowledge transfer to the technical community dealing with concrete technology and structural engineering with

focus on the use of eco-friendly materials for sustainable concrete infrastructures with reduced carbon footprint. As we know that there is significant urgency to reduce the carbon footprint by designing the concrete mix using materials such as fly-ash, blast furnace slag, the combination of fly-ash and slag as well as other supplementary cementitious materials such as Alccofine and graphene oxide as replacement of ordinary Portland cement which is the main source of generating the green-house gases leading to the environmental pollution and global warming. The increasing global warming effect has significant effect on human civilizations and other living beings through natural disasters coming in the form of tsunami, earthquake, floods, and drought conditions, etc. If the global warming effect is not controlled this may lead to existential condition for the living beings and the mother earth. In this scenario, researchers, academician, and practitioners have a great role in designing green construction materials with significant reduction of natural resources with recycling and use of construction and demolition waste, and suitable use of natural fibers. In addition, the designers and practitioners especially dealing with concrete technology should look for innovative design practices so that structures could be designed keeping in view of sustainability based and durability based design approaches.

It is well known that concrete is most consumed material today in the construction sector and hence by making the concrete with the use of its ingredients from renewable sources as well as industrial wastes, a significant amount of carbon footprint could be reduced for helping this world in controlling the global warming and saving our mother Earth. Furthermore, to improve the material characteristics and structural response, use engineered cementitious composites, self-compacting concrete, ductile concrete, and high performance

concrete is required to support the performance based design of concrete structures. Some of references are given here to support the editor's perspectives on sustainable use of concrete. It is also to be noted that RCC structure and its interaction must be also studied to understand the actual structures response for its safety in general. Some of examples of sustainable use of materials and structure-foundation interaction response are given below.

The usage of recycled concrete aggregate (RCA) extracted from construction and demolition waste (CDW) <sup>[2]</sup> is growing in various civil engineering application <sup>[1]</sup>. In the recent times, most researchers have focused their investigation on the uses of recycled aggregates (RA) in normal concrete demonstrating technological advancements <sup>[3,4]</sup> with the use of coarse recycled aggregates and fine aggregates made of industrial by-products such as bottom ash and fly-ash <sup>[5]</sup>. It has been shown by Tsudik <sup>[6]</sup> that for a flexible footing, moments and shears obtained are often in significant variance to the same foundation considered as a rigid footing. Most recently, researchers have started to use industrial byproducts as a building material as they have become more aware of the negative effects of solid waste production and disposal on human health <sup>[7]</sup>.

From the above points and some specified literature, I want to emphasize that researchers in particular and academician and practitioners in general need to focus on the innovative practices to use the supplementary cementitious materials for design of green concrete mix with or without the use of fibers with primary aim to develop concrete with reduced carbon footprint. Furthermore, it is equally important to develop design guidelines for the sustainable cementitious concrete materials so that performance based structural design could be achieved with reduced carbon footprint and energy consumption.

Now, I would like to highlight that all the four technical publications of this issues have covered the wide range of parameters of concrete technology such as the use of recycled fine and coarse aggregates, industrial byproducts, self-compacting concrete, mix design for sustainable concrete infrastructures. Finally, on behalf of the entire team of the Indian Concrete Journal, I extend sincere appreciation

for the authors who have spent their valuable time for creating such a good quality papers which are highly beneficial to the concrete research community and meet the need of the time. Furthermore, I also extend my heart-felt thanks to all the valuable reviewers without their support the quality papers could not have been selected for this issue of the Indian Concrete Journal. I also greatly acknowledge the role of entire ICJ team, most importantly Ms. Priti Saldanha and Ms. Nikita for their valuable time and support for bringing out this

issue of the journal. I strongly believe that readers in general will be benefited a lot by this issue of the Indian Concrete Journal.

With Best Regards,

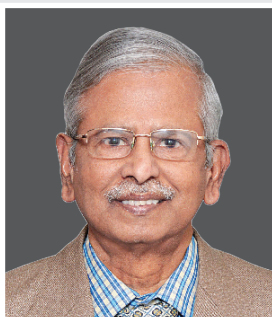
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*Congratulations!*



We at the Indian Concrete Journal (ICJ) congratulate Dr N. Subramanian on winning the Edmund Friedman Professional Recognition Award bestowed on him by the American Society of Civil Engineers (ASCE)'s Committee.

This award recognises the exemplary conduct and service of Dr N. Subramanian in the field of Civil Engineering, for commitment to advancing engineering education and for his outstanding community leadership and philanthropy. Dr N. Subramanian is also an Editorial Board member of the ICJ.