Dear Readers,

we are delighted to present the April edition of The Indian Concrete Journal (ICJ), featuring a diverse array of contributions from both academia and industry professionals. This edition is guest edited by Prof. Pasala Dinakar, a distinguished Professor in Civil Engineering and Dean (Sponsored Research & Industrial Consultancy) at the Indian Institute of Technology (IIT) Bhubaneshwar. Prof. Dinakar is also the Chairman of the Indian Concrete Institute (ICI), Bhubaneswar Chapter, and an active consultant in the fields of design, repair, rehabilitation, and construction. His expertise in durability, corrosion of steel in concrete, and waste utilization in concrete is well recognized, with numerous publications in national and international journals to his credit.

The Indian Concrete Journal continues its tradition of showcasing high-quality, peer-reviewed research that advances the body of knowledge in concrete technology and civil infrastructure. This issue presents a rich collection of articles that reflect the rapidly evolving landscape of materials science and structural engineering.

We highly value and appreciate readers' comments and opinions regarding the technical articles.

Happy Reading!

Production Editor
Indian Concrete Journal

Dear Readers,

The Indian Concrete Journal (ICJ) continues its tradition of showcasing high-quality, peer-reviewed research that advances the body of knowledge in concrete technology and civil infrastructure. This particular issue presents a diversified and enriching collection of articles encompassing cutting-edge research on fibre-reinforced concrete, structural behavior of RC elements, experimental studies, and case-based evaluations, all of which reflect the rapidly evolving landscape of materials science and structural engineering. The April 2025 edition of ICJ displays the journal's dedication to enhancing knowledge and practice in concrete and construction engineering. A brief overview of the articles published on this this issue is presented here.

The first study, conducted by Saranya and Sunitha[1], investigates the impact of neglecting non-structural elements (NSEs) in seismic analysis of buildings. Typically excluded from structural models, NSEs experience dynamic interactions with structural elements (SEs), which can significantly affect their earthquake response—especially for acceleration-sensitive components. Using floor response spectrum (FRS) and both coupled and decoupled modelling approaches in nonlinear response history analysis, the study evaluates acceleration demands on NSEs. The results highlight that including SE-NSE interaction yields more accurate predictions and is crucial for improving the seismic resilience and design of buildings and their non-structural components.

A study by Shweta and Prakash[2] highlights the importance of cooling methods on the fire performance of fly ash concrete. Their study explores the performance of fly ash-based concrete under high-temperature conditions, addressing fire resistance—a critical factor in structural safety. Fly ash, increasingly used as a partial replacement for cement due to improved quality from thermal power plants, is tested in varying proportions (0–30 %) and exposed to temperatures ranging from 200°C to 1000°C for 4 hours. The concrete's compressive,

tensile, flexural, and impact strengths are assessed under different cooling methods: gradual, sudden, and intermittent. Results reveal that sudden cooling leads to the most significant strength loss, while gradual cooling causes the least deterioration.

Authored by Sabahat and Arif[3], their study investigates ways to improve the compressive strength of pervious concrete, which is valued for its porosity and stormwater management but traditionally limited to low-traffic applications due to its low strength. By incorporating glass and polypropylene fibres in varying proportions and designing mixes per IRC 044 with a 0.38 water-cement ratio and 20% target porosity, they tested 63 different batches. The optimal fiber contents for improved strength were found to be 0.4% for glass fibers and 0.2%–0.4% for polypropylene fibers, depending on the paste volume. Their findings demonstrate the potential to develop stronger, more durable, and sustainable pervious concrete for broader applications.

The fourth study, by Somiyadevi and Ramasamy[4], evaluates the static behavior of high-strength concrete beams strengthened with externally bonded hybrid fibre-reinforced polymer laminates. Focusing on various layer combinations of carbon (CFRP) and glass (GFRP) fibres, the research involves both experimental and analytical investigations. The experimental specimens were subjected to flexural loading until failure. Results show that increasing the number of hybrid FRP layers significantly improved the strength and ductility of the beams, highlighting the effectiveness of hybrid FRP in structural strengthening.

Finally, Bhanupriya and Nisheeth[5] studied the use of alternative water sources for concrete mixing and curing, focusing on their impact on concrete durability and corrosion potential. Water samples from various sources underwent physio-chemical analysis, and concrete specimens were tested for compressive strength, UPV, rebound hammer, RCPT, and water permeability at different ages. Results showed that concrete made with river water had lower strength, higher chloride permeability, deeper water penetration, and greater corrosion risk. Corrosivity was further assessed using indices like Larson-Skold, Ryznar, and Puckorius. The study highlights the potential of using alternative water sources in construction while emphasizing the need to assess their durability impacts.

This edition of ICJ presents a compilation of well-researched, technically robust, and progressive articles that furnish practitioners, academicians, and policy-makers with essential insights to guide sustainable design, resilient construction, and material innovation. The balanced focus on experimental insight, practical application, and analytical modelling illustrates the evolving research culture in India, which is becoming more integrated into worldwide academic and industry networks. As construction issues become increasingly intricate and environmental concerns escalate, journals such as ICJ are crucial in influencing the development of future concrete technologies. We highly value and appreciate readers' comments and opinions regarding the technical articles and the ICJ in general. Your thoughts and insights are eagerly awaited by us.

Prof. Dinakar Pasala
Guest Editor, ICJ

REFERENCES

[1] Saranya, S., and Sunitha, P. (2025). "influence of numerical modelling techniques in the estimation of seismic demands on non-structural elements", *The Indian Concrete Journal*, Vol. 99, No. 4, pp. 7-16.

[2] Patil, S., and Prakash K. B. (2024). "comparison of different rates of cooling on the properties of flyash concrete on exposure to different sustained elevated temperatures", *The Indian Concrete Journal*, Vol. 99, No. 8, pp. 17-23.

[3] Khan, S. A., and Mohammed, A. (2025). "Experimental investigations on glass and polypropylene fiber reinforced pervious concrete", The Indian Concrete Journal, Vol. 99, No. 4, pp. 24-32.

[4] Somiyadevi, P., and Ramasamy, V. (2025). "Static response of high-strength concrete beams with hybrid fibre-reinforced polymer (hyfrp) laminates", The Indian Concrete Journal, Vol. 99, No. 4, pp. 33-46.

[5] Sharma, B., and Agnihotri, N. and Ram, S., Vyas, S. (2024). "investigative analysis on mechanical and durability properties of concrete mixed and cured with different construction water sources", *The Indian Concrete Journal*, Vol. 99, No. 4, pp. 47-59.