STRUCTURAL ENGINEERING

QUARTERLY JOURNAL OF

INDIAN SOCIETY

OF

STRUCTURAL ENGINEERS

ISSE

VOLUME 28- 2

APR - MAY - JUNE 2026



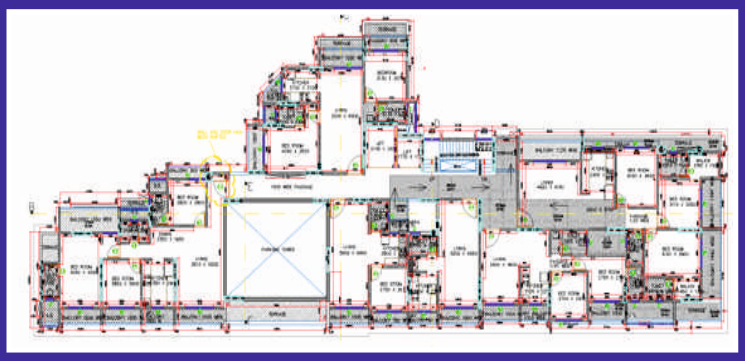
GEM 48 PROF. S.K. KAUSHIK- VISIONARY ACADEMIC, RESEARCH LEADER, AND CONCRETE TECHNOLOGIST see page 3





SKY BRIDGE RESTAURANT BLOCK IN WORLD TRADE CENTRE, NEW DELHI: see page 7





VALUE ENGINEERING IS ALL ABOUT RIGHT THINGS AT RIGHT TIME- see page 15

SAD DEMISE



ER. ARUN B. KARNIK
Date : 4 May 2026



ER. K. L. SAVLA
Date : 15 May 2026





NEWS AND EVENTS DURING APR TO JUNE 2026 see page - 18

LET US BUILD A STRONG STRUCTURE OF INDIAN SOCIETY

अल्ट्राटेक सी मे ंट
इंजीनियर की पसंद
देश का नं.1 सीमेंट

ADITYA BIRLA
CEMENT

पेश है
अल्ट्राटेक सुपर+

टैम्परप्रूफ बैग





INDIAN SOCIETY OF STRUCTURAL ENGINEERS

ISSE

VOLUME 28 - 2, APR - MAY - JUNE 2026

Correspondence Address : C/O, Maansi Nandgaonkar, 101, Sunflower, Sakharam Keer Road, Shivaji Park, Mahim, Mumbai - 400016

Charity Commissioner Reg. No. E 17940, Mumbai Donations are exempted from Income under 80-G

Tel.: 91-22-24314423, +91 22 3167 1614 • E-mail : issehq@hotmail.com • Website : www.isse.org.in

FOUNDER PRESIDENT : **Late Eng. R. L. Nene**

Past Advisors :

Late G. C. Oak	Late D. S. Joshi
Late M. C. Bhide	Late M. D. Mulay
Late G. B. Choudhari	Late S. G. Patil
Late K. L. Savla	Late N. K. Bhattacharyya
P. B. Dandekar	Late M. M. Nandgaonkar

ISSE WORKING COMMITTEE :

President	.....	Hemant Vadalkar
Hon. Secretary	.....	Rangnath Satam
Treasurer	.....	Paresh Unnarkar
Past President	.....	S. G. Dharmadhikari
	.....	Shantilal H. Jain
Members	.....	J. R. Raval
	.....	U. V. Dhargalkar
	.....	Madhav Chikodi
Technical Committee Member	.....	Vatsal Gokani
	.....	Shekhar Vaishampayan
		Vivek Abhyankar
		Tanuja Bandivadekar
		Chirag Jain
		Ankit Asher
Managing Trustee	.....	Maharashtra Executor and Trustee Co. Pvt. Ltd.

ISSE LOCAL CENTRES:

Pune	Aurangabad
Solapur	Baramati (Dist- Pune)
Navi Mumbai	Amravati
Palghar	Kalyan - Dombivali
Kolhapur	Indore (MP State)

ISSE Student Chapter :

M. H. Saboo Siddiki College of Engg., Mumbai
MIT WPU, Pune
Chameli Devi Group of Institutions, Indore
Vivekanand Polytechnic, Mumbai.
Walchand College of Engg. Sangli.
MIT College, Loni Kalbhor, Pune
Aditya Engineering College, Surapalem
G H Raisoni College Of Engineering & Management, Pune
Maharaja Institute of Technology, Thandavpura, Mysore
Vidyavardhini College of Engineering, Vasai (VECT)
P. R. Pote Patil College of Engineering & Management, Amravati
Sardar Patel College of Engineering, Mumbai
Sipna College of Engineering & Technical, Amravati.
The Sayajirao Maharaja University of Baroda
Veermata Jijabai Technological Institute (VJTI), Mumbai

Contents

- Fraternity News 2
- GEM 48 PROF. S.K. KAUSHIK-VISIONARY ACADEMIC, RESEARCH LEADER, AND CONCRETE TECHNOLOGIST
  By Dr. N. Subramanian 3
- SKY BRIDGE RESTAURANT BLOCK IN WORLD TRADE CENTRE, NEW DELHI
  By Sachin Kumaran 7
- VALUE ENGINEERING IS ALL ABOUT RIGHT THINGS AT RIGHT TIME
  By - Satish Patankar & Neelesh Dabholkar 13
- OUR POWER, OUR PLANET : TAKING RESPONSIBILITY FOR EARTH'S FUTURE
  By Jagdish B. Rele 16
- NEWS AND EVENTS DURING APR 2026 – JUNE 2026
  By Er. Vatsal Gokani 18

Editor : Vatsal Gokani

Views expressed are authors' or reporters' personal and do not necessarily reflect views of ISSE. ISSE is not responsible for any consequent actions based on contents or information given in the journal.

AIMS & OBJECTIVE OF ISSE

1. To restore the desired status to the Structural Engineer in construction industry and to create awareness about the profession.
2. To define Boundaries of Responsibilities of Structural Engineer, commensurate with remuneration.
3. To get easy registration with Governments, Corporations and similar organizations all over India, for our members.
4. To reformulate Certification policies adopted by various authorities, to remove anomalies.
5. To convince all Govt. & Semi Govt. bodies for directly engaging Structural Engineer for his services.
6. To disseminate information in various fields of Structural Engineering, to all members.

FIELD OF INTEREST

- ❄ Structural; Designing & Detailing
- ❄ Computer Software
- ❄ Materials Technology, Ferrocement
- ❄ Teaching, Research % Development
- ❄ Rehabilitation of Structures
- ❄ Construction Technology & Management
- ❄ Geo-Tech & Foundation Engineering
- ❄ Environmental Engineering
- ❄ Non Destructive Testing
- ❄ Bridge Engineering & Other related branches

Fraternity News

WELCOME TO NEW MEMBERS

(APR - MAY - JUNE 2026)

2713	Chandrashekhar Dattatray Wagh	2728	Gopal Singh
2714	Vikram Santosh Singh	2729	Rahul Budhiwant Telang
2715	Avanti Mallinath Anjungikar	2730	Mukesh Singh Ghuraiya
2716	Mohammed Shihab Mohammed Ilyas Patel	2731	Shashank Shivaji Sul
2717	Sunil Surajprasad Yadav	2732	Ranjit Singh Rathore
2718	Priyanka Raju Bhivgade	2733	Lalit Kumar P.
2719	Mohini Namdeo Khade	2734	Satyajeet Shrikant Patil
2720	Sreyashrao Suryarao Surapreddi	2735	Muavin Munaf Punjabi
2721	Prasad Moreshwar Gharat	2736	Pulkit Dilip Velani
2722	Abhinav Vinay Nakhawa	2737	Dipti Prasad Bendre
2723	Sandip Deb	2738	Vivek Ravindra Jakkani
2724	Rahul Satyanarayanji Biyani	2739	Nitish Appasaheb Mhasrup
2725	Ganesh Shamrao Kame		
2726	Madhuri SantoshKumar Kanase	JM 92	Lalitkumar Sunil Patil
2727	Jagdish B. Rele	JM 93	Veera Brahmam Angalakuthy

Patrons : 38
Members : 2719
Student Members : 920
Organisation Members : 43
Junior Members : 93
Sponsor : 8
IM : 08

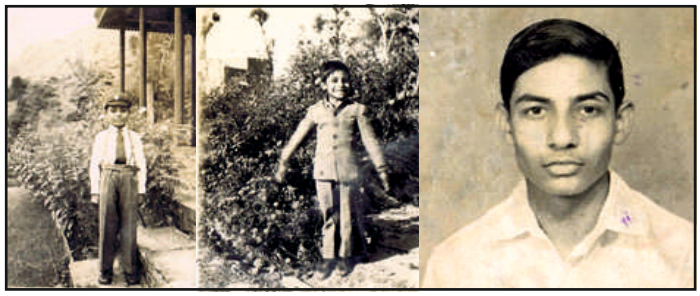
TOTAL STRENGTH : 3,849

GEM 48 PROF. S.K. KAUSHIK-VISIONARY ACADEMIC, RESEARCH LEADER, AND CONCRETE TECHNOLOGIST

By Dr. N. Subramanian



Prof. Surendra Kumar Kaushik, Ph.D., FNAE (1944-)



Some ealy age photos of Prof. Kaushik

In the chronicles of Indian structural engineering, few figures have contributed as holistically and extensively as Prof. Surendra Kumar Kaushik, Ph.D., FNAE. A trailblazer in concrete technology, ferrocement, and structural resilience, Prof. Kaushik's storied career, spanning more than five decades, reflects an unwavering commitment to engineering education, research, consultancy, and professional leadership.

EARLY EDUCATION AND ACADEMIC FOUNDATIONS

Surendra Kaushik was born to Mr. R. C. Kaushik, IFoS, Chief Conservator of Forests, State of Himachal Pradesh, and Former President, Forest Research Institute and Collage, Simla, India and Mrs. Sobhagyawati Kaushik a housewife in Delhi on September 24, 1944. Commenced school education in 1948 at Bishop Cotton School, Shimla and shifted to St. Joseph's Academy, Dehradun (UP) in 1950. He joined Arya High School, Ludhiana in 1956 and Govt. College, Ludhiana during 1959 to 1961 for completing Intermediate Science degree. Finally he qualified one of the toughest competitive examination, the JEE Examination 1961, to enter the Civil Engineering Degree Program (B.Tech.) at Indian Institute of Technology (IIT) Kanpur and completed it in 1966. His professional journey commenced with a Doctoral Degree in Civil Engineering from at IIT Kharagpur with specialization in Structural Engineering, in December 1970.

Dr. Surendra Kaushik started his Professional Career in 1970 with M/s Joseph Allen Stein & Associates, Architects and Engineers at New Delhi. He began his academic journey as a Lecturer at the University of Roorkee in 1970 and steadily rose through the ranks to become a Professor and Head of the Civil Engineering Department. He also served as the Head Civil Engineering, IIT, Roorkee and also as a Dean of Infrastructure at IIT Roorkee.

ACADEMIC AND RESEARCH CONTRIBUTIONS

During his 35-year tenure at the University of Roorkee (now IIT Roorkee), Prof. Kaushik left an indelible mark through his passion for teaching, research, and mentoring. He supervised 30 doctoral theses and 110 master's theses, nurturing a generation of structural engineers and researchers. His areas of expertise include ferrocement technology, fiber reinforced concrete (FRC), high-performance and self-compacting concretes, non-destructive testing, marine concrete durability, and retrofitting techniques.

Prof. Kaushik has published over 250 research papers in reputed national and international journals and conferences. His research was marked by both depth and diversity, encompassing experimental studies, analytical modeling, code development, and performance-based evaluation of structural systems. Noteworthy among his works is the pioneering use of steel fiber-reinforced concrete under combined loading, studies on fire resistance

of high-strength concrete, and ferrocement prefabricated elements for low-cost housing.

Leadership in Institutional and National Roles

Prof. Koushik is a fellow / member of several professional organizations and also took active part in many of them, which include

- Institution of Engineers (India)
- Indian Concrete Institute (ICI)
- Association of Consulting Civil Engineers [ACCE(I)]
- American Concrete Institute (ACI)
- American Society of Civil Engineers (ASCE)-India Section
- Indian Institute of Bridge Engineers (IIBE)
- Indian Road Congress (IRC)
- Indian Geotechnical Society (IGS)
- Indian Building Congress (IBC)
- Indian Society of Technical Education (ISTE)
- American Biographical Institute [ABI (USA]
- Indian Society of Earthquake Technology(ISET)
- Institution of Valuers, India (IV)
- Indian Society for Non-Destructive Testing (ISNT)
- Materials Research Society of India

He is also a charted Engineer [C.Eng. (I)], and professional engineer [P.Eng. (I)] in India.

Prof. Kaushik held multiple key positions throughout his career. He served as:

- President, Indian Concrete Institute (ICI), 1995-1997
- President, Indian Society of Construction Materials and Structures
- President, International Centre for Fibre Reinforced Concrete Composites
- Vice President, Association of Consulting Civil Engineers (India)
- Vice President, International Ferrocement Society, Bangkok
- Chairman, Institution of Engineers (India), Roorkee Centre

He was also a Governor of the Engineering Council of India and played pivotal roles in the Bureau of Indian Standards (BIS) and Indian Roads Congress (IRC) through his involvement in structural safety and design code committees.

Consultancy and Industry Interface

Prof. Kaushik's industry collaboration was prolific. He led or participated in the design and evaluation of projects worth over ₹1000 crores, encompassing bridges, flyovers, Road Over- Bridges (ROBs), jetties, oil storage structures, ammonia spheres, and blast-resistant buildings. His contributions included the development of concrete mix designs for major infrastructure projects like the Kundankulam Nuclear Power Plant, and structural health assessments for industrial facilities and public buildings.

Notably, he provided consultancy for the Indian Oil Corporation, DRDO, ONGC, and several public sector undertakings. His technical acumen was especially valued in non-destructive testing, rehabilitation of fire-damaged and aging structures, and structural audits of multi-storey buildings.

Contribution to Professional Development and Education

Beyond teaching, Prof. Kaushik organized and led over 35 national and international seminars, workshops, and Continuing Professional Development (CPD) programs, including Asia-Pacific symposiums on ferrocement, training courses on Non-Destructive Testing (NDT) and detailing of RC structures, and national conventions under the banner of ICI and Institution of Engineers (I). His editorial roles included service on the boards of the Indian Concrete Journal, Journal of Ferrocement, Cement and Concrete Composites, and Bulletin of ISET.

His commitment to academic excellence extended to authoring manuals and reports that served as foundational references for both students and practicing engineers. He was instrumental in setting curricula for structural mechanics and concrete design courses and chaired BIS working groups for code development in ferrocement.

BOOKS PUBLISHED

I. Proceedings of International Seminars/ Symposium

1. Third International Symposium on Ferrocement, Tata-McGraw Hill Publishing Co. Ltd., New Delhi, Dec.1998, p. 728(Co. Ed. Er. V.K.Gupta)
2. International Seminar on Civil Engineering Practices in Twenty First Century, New Age Publishers New Delhi, Feb. 26-28,1996, p. 1764 (Co-Eds. Prof. G.L. Asawa and Dr. A.K. Ahuja).
3. Indo-US Workshop on Non Destructive Testing on Concrete Structures, Indian Concrete Institute, Roorkee, Dec. 17-19, 1996, (Co.- Eds. Prof S.P. Shah & Dr. A.K. Maji).
4. International Conference on Structural Engineering, Institution of Engineers (India), Sept. 25-27, 1999, Ghaziabad.

II. Conference/Workshop Proceedings

1. Asia-Pacific Symposium on Ferrocement Applications for Rural Development, Sarita Prakashan, Meerut, April 1984.
2. Workshop on Masonry Arch Bridges– Assessment and Strengthening, Roorkee Publishing House, Roorkee, 1985, p.101, (Edited).
3. National Seminar on Detailing of Reinforced Concrete Structures, Roorkee, April 1986- Presented Two Papers.
4. Concrete Admixtures and Repair Materials, Indian Concrete Institute, U.P. Local Center, Roorkee, Dec. 1988, p.101.
5. Special Concretes. Indian Concrete Institute, U.P. Local Centre, Roorkee, Sept. 1989.
6. Use of Concrete in Offshore Structures, Docks & Harbours, October 1992.
7. Second Asia-Pacific Symposium on Ferrocement, Roorkee, 25-27 February 1994

III. Manuals

1. Structural Mechanics Laboratory Manual, Q.I.P. Centre, Roorkee, 1984, p.106.(Co-author Mr. V.K. Gupta).
2. Material Testing Laboratory Manual for Civil Engineers, Standard Publishers And Distributors, Delhi, 1988, p. 175 (Co-authors Dr. C. B. Kukreja, Mr. V. K. Gupta and Mr. K. Kishore)
3. Applications of Steel Fibre Reinforced Concrete for Seismic Resistance, TM-7, ICFRC, Chennai, June 2000, p.15.

AWARDS AND RECOGNITION

Prof. Kaushik's contributions have been widely recognized. He was awarded:

- Fellowship of the Indian National Academy of Engineering (FNAE) in 1999
- Lifetime Achievement Award by the Indian Concrete Institute in 2006
- Outstanding Concrete Technologist Award, ICI, 2004
- E.P. Nicolaides Medal (twice) and Brij Mohan Lal Award, Institution of Engineers(I)
- Best Paper Awards from ICI, ICFRCC, and ISCMS
- Fellowship of Punjab Academy of Sciences
- AICTE-INAE Distinguished Visiting Professor

He has been listed in international directories such as the American Biographical Institute's Directory of Distinguished Leadership, highlighting his global stature.

Service Beyond Academia

Since his retirement in 2005, Prof. Kaushik has continued his contribution through voluntary service in the Engineering Construction Department of Radha Soami Satsang Beas, Punjab. He remains actively involved in mentoring, reviewing, and professional consulting, upholding the ethos of lifelong service to society.



He was also deeply involved in Rotary and Masonic social work, having served as President of the Rotary Club Roorkee Midtown and organizing numerous community service initiatives including blood donation camps and rural development projects.

FAMILY PROFILE

Prof. Kaushik married Mrs. Indra Kaushik, M.A (Psych.), Dip. In French, who is the Managing Director of Doon Engineers (P) Ltd., Dehradun 248 001, Uttarakhand.



Prof. Kaushik with family members, when he was young



S. K. Kaushik and Indra Kaushik



Pankaj(younger son) with grandson (Lakshaya now 20years old), daughter Priya, Dr. Sharad (elder son) and daughter-in-law Dr. Sheeshma

Mrs. and Prof. Kaushik are blessed with 2 sons and one daughter. His son Dr. Sharad Kaushik, M.D., is the Director of Doon Engineers (P) Ltd., 12 New Road, Dehradun 248001, Uttarakhand and the other son, Mr. Pankaj Kaushik, DHRM (Switzerland), DHMA (USA) is with Hotel Aroma, 12 New Road, Dehradun 248 001, Uttarakhand.
Their Daughter, Ms. Priya Kaushik, BBA, DHM&CT is with Veterans' Affairs New Zealand as Accounts Officer Hamilton, New Zealand.

Legacy and Inspiration

Prof. S.K. Kaushik's career is a beacon for aspiring structural engineers. His life exemplifies the symbiosis of technical brilliance, institutional leadership, public service, and humanistic values.

His multifaceted contributions—academic, technical, administrative, and social—serve as a template for holistic professional excellence.

In a world where engineering is increasingly interdisciplinary and socially responsible, Prof. Kaushik's life work reinforces the enduring importance of fundamentals, ethical service, and visionary thinking. As a true GEM of Structural Engineering, his legacy continues to inspire and shape the built environment of India and beyond.

About the Author



Dr. N. Subramanian,
Ph.D., FNAE is an award winning Author, Structural Engineering consultant and Mentor, currently based at Maryland, USA, with over 48 years of experience in Industry (including consultancy, research and teaching). He was awarded with the 2024 Edmund Friedman Professional Recognition Award of the American Society of Civil Engineers, ACCE(I)'s Gourav Award, ICI's 'Life Time Achievement Award' and many other awards for his contributions towards Structural Engineering. He is the author of 25 books and over 315 papers, including the famous books on 'Design of Steel Structures', 'Design of RC Structures' and 'Principles of Space Structures' and the recent 'Building Materials, Testing and Sustainability'. (email - drnsmani@yahoo.com) stainability'. (email - drnsmani@yahoo.com)

SKY BRIDGE RESTAURANT BLOCK IN WORLD TRADE CENTRE, NEW DELHI:

A CASE STUDY IN HYBRID STRUCTURAL ENGINEERING

By Sachin Kumaran

Abstract

This paper presents a comprehensive technical case study of the Sky Bridge Restaurant Block constructed at the World Trade Centre (WTC), New Delhi — a landmark integrated commercial development spanning 25 acres with 6 million square feet of built-up area. The Sky Bridge is an elevated dining facility interconnecting Towers F and G at the 8th and 9th floor levels, approximately 29.25 m above grade. The original design employed a conventional Reinforced Cement Concrete (RCC) beam-slab framing system; however, critical evaluation under the constraints of an Engineering, Procurement and Construction (EPC) contract with a 24-month completion deadline necessitated the exploration of alternative structural configurations. Following systematic evaluation of three competing schemes, a hybrid structural system — combining Vierendeel cantilever trusses at the building periphery with RCC core walls and a composite metal-deck floor system — was adopted. This paper elaborates on the structural rationale, design parameters, construction methodology, and the quantifiable benefits realised through the selected system.

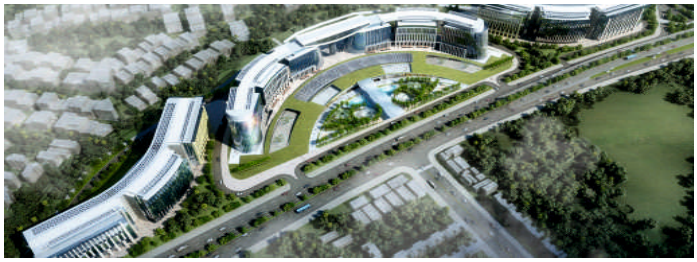
Keywords: Sky Bridge; Vierendeel Truss; Hybrid Structure; Structural Steel; Composite Deck; World Trade Centre; EPC; Seismic Design; IS 1893; High-Rise Construction

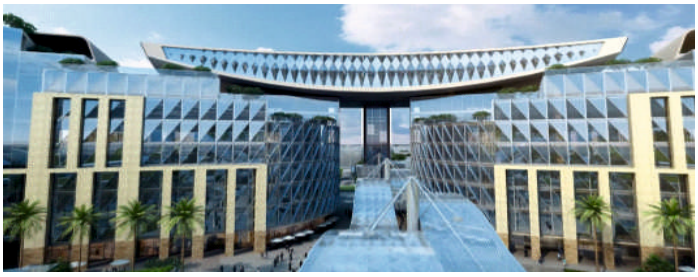
1. Introduction

The World Trade Centre (WTC), New Delhi, is a contemporary integrated commercial development occupying 25 acres of prime urban land with a total constructed area of approximately 6 million square feet. The project comprises 12 office towers, each rising to 10 storeys and underlain by three levels of basement infrastructure. The development was executed by NCC Limited under an EPC model, with a contractually stipulated completion timeline of 24 months.

A defining architectural and engineering feature of the WTC development is the Sky Bridge Restaurant Block — an elevated structure spanning between Towers F and G at the 8th and 9th floor levels, positioned at a height of 29.25 m above the ground plane. The Sky Bridge houses fine dining restaurants and business lounges, and is accessed via an independent elevator core equipped with capsule elevators, providing a distinct vertical circulation system segregated from the primary office tower infrastructure.

The design and execution of such an elevated, occupied bridge structure within the constraints of a condensed construction programme presents substantial engineering challenges. This paper documents the structural engineering decisions made during the project, with particular focus on the transition from the originally specified RCC framing to the ultimately adopted hybrid steel-concrete system.



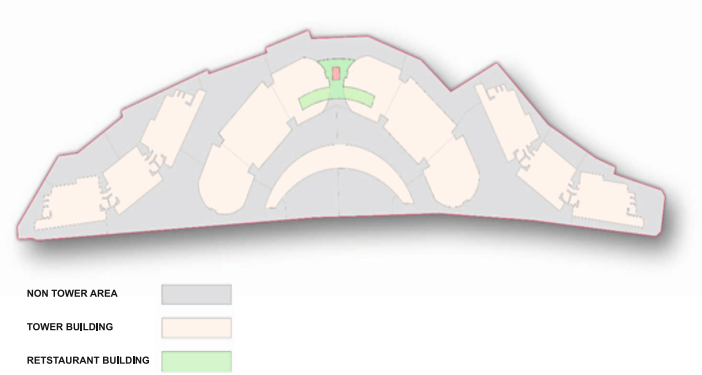


2. Project Overview and Design Parameters

Table 1 presents the key project parameters and site-specific design inputs applicable to the Sky Bridge structure.

Table 1: Key Project and Design Parameters

Parameter	Value / Description
Project	World Trade Centre, New Delhi
Total Site Area	25 acres
Total Built -up Area	6 million sq. ft.
Number of Towers	12 towers (10 storeys each)
Sky Bridge Location	Between Towers F & G
Sky Bridge Elevation	8th and 9th Floors (29.25 m above grade)
Contract Type	EPC (Engineering, Procurement & Construction)
Contractor	NCC Limited
Project Timeline	24 months
Seismic Zone	Zone IV (IS 1893:2016)
Design Wind Speed	47 m/s (IS 875:2015)

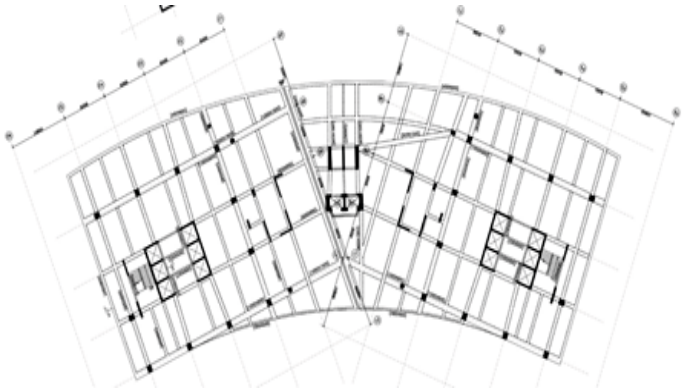


3. Structural Engineering Challenges

The original NIT (Notice Inviting Tender) specifications designated a conventional RCC beam-slab framing system for the Sky Bridge Restaurant Block. However, a detailed constructability review identified several critical impediments to achieving this within the stipulated project timeline:

- Construction Rate: Conventional RCC construction involves sequential formwork erection, reinforcement placement, concrete pouring, and curing cycles, which are inherently time-intensive and incompatible with the aggressive 24-month programme.
- Scaffolding Complexity: The elevated nature of the structure — spanning across an open courtyard at 29.25 m above grade — necessitated multi-tiered scaffolding systems to support conventional RCC construction. This introduced significant logistical complexity, cost escalation, and safety risks.
- Contractual Liability: The EPC contract included penalty clauses for project delays. The client therefore sought assurance that the structural system would not be a rate-limiting factor in overall project delivery.
- Dead Load Implications: A fully RCC Sky Bridge would impose considerable dead loads on the supporting tower structure, with consequential implications for foundation sizing and seismic response.

These considerations collectively necessitated a formal evaluation of alternative structural systems.



4. Evaluation of Alternative Structural Schemes

Three structural alternatives were systematically evaluated:

Option 1: Entire Structure in Structural Steel

This scheme proposed an all-steel framing system for both horizontal and vertical structural members. While offering maximum speed of construction and minimal dead load, it presented challenges in achieving fire resistance ratings without extensive passive fire protection and resulted in higher steel tonnage due to the absence of composite action.

Option 2: Structural Steel Horizontal Members with RCC Vertical Members

This hybrid scheme retained RCC core walls and columns while replacing all horizontal framing members with structural steel. It offered an intermediate balance of speed and structural efficiency but retained the construction sequencing constraints associated with RCC vertical elements.

Option 3: Vierendeel Cantilever Trusses with RCC Core Walls (Selected Scheme)

This option employed Vierendeel cantilever trusses along the building periphery, with RCC core walls providing lateral stability and gravity load transfer at the central zone. The floor system across all three options utilised a composite metal deck arrangement — steel decking with in-situ concrete — supported on structural steel beams. This arrangement optimised the structural depth while enabling rapid installation.

Following multi-criteria evaluation encompassing structural efficiency, constructability, cost, service routing, architectural compatibility, and seismic performance, Option 3 was selected as the most effective solution. The decision rationale is summarised in Table 2.

Table 2: Comparative Evaluation of Structural Schemes

Criterion	Option 1 (All Steel)	Option 2 (Steel H + RCC V)	Option 3 (Vierendeel + RCC Core)
Structural Efficiency	Moderate	Good	Excellent
Construction Speed	High	High	High
Functional Usage	Good	Good	Excellent
Service Routing	Good	Good	Excellent
Seismic Weight Reduction	High	High	High
Architectural Compatibility	Good	Good	Excellent
Overall Assessment	Acceptable	Acceptable	Selected

5. Description of the Selected Hybrid Structural System

5.1 Structural Configuration

The adopted hybrid structural system for the Sky Bridge Restaurant Block integrates the following primary structural components:

- Two-Floor Deep Trusses: These are provided at the rear of the Sky Bridge and span across the full structural depth of the 8th and 9th floors (two storey truss height). The deep truss configuration efficiently redistributes gravity loads over longer spans while minimising mid-span deflections.
- Vierendeel Cantilever Trusses: Deployed along the side periphery of the bridge, the Vierendeel frames cantilever from the primary tower structure. Unlike conventional triangulated trusses, Vierendeel frames carry loads through bending and shear in their chord and vertical members — eliminating diagonal members and thereby providing unobstructed internal spaces suitable for the architectural requirements of a restaurant facility.
- RCC Core Walls: Reinforced concrete core walls are retained at the central zone, providing the primary lateral load resistance (seismic and wind) and serving as the main gravity load transfer element between the bridge and the tower foundations.
- Composite Metal-Deck Floor System: The floor system comprises profiled steel decking with structural concrete topping, acting compositely with supporting steel beams. This system enables rapid floor construction with minimal formwork requirements.
- Independent Elevator Core with Capsule Elevators: A dedicated structural elevator core provides independent vertical access to the Sky Bridge, structurally decoupled from the main tower systems.

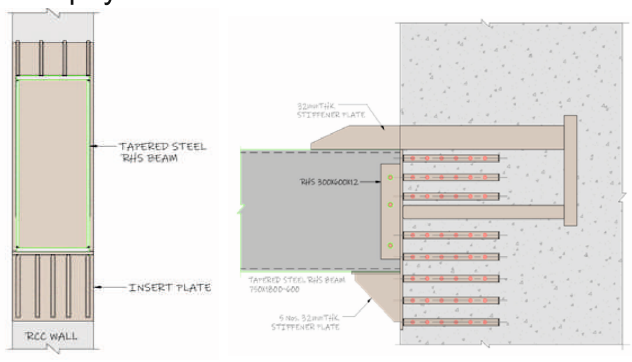


5.2 Seismic and Wind Design Parameters

The structure is located in Seismic Zone IV (high-hazard zone) as per IS 1893:2016 and is designed for a design wind speed of 47 m/s in accordance with IS 875 (Part 3):2015. The selection of a hybrid steel-concrete system was particularly advantageous from a seismic performance perspective, as the reduced dead weight of the structural steel framing translates directly into reduced seismic mass and consequently lower inertial forces on the supporting towers.

5.3 Connection Details

Critical member connections were designed to transfer combined axial, shear, and moment forces arising from the primary structural actions of the Vierendeel frames and deep trusses. Anchorage details for the Vierendeel cantilever trusses at their connection to the tower frame were designed to accommodate the large moment reversals inherent to cantilever framing under seismic excitation. Connection design incorporated provisions for ductile behaviour consistent with the seismic design philosophy of IS 1893:2016.





6. Construction Methodology

The construction sequence was developed to maximise parallelism of activities and minimise dependency on sequential critical-path items. Key aspects of the construction methodology included:

- Prefabrication and Shop Fabrication: Structural steel members — including truss chords, verticals, and connection plates — were fabricated off-site under controlled workshop conditions. This approach ensured dimensional accuracy, improved quality control, and facilitated rapid erection on-site.
- Erection Sequencing: Steel erection proceeded from the RCC core outward to the perimeter, minimising cantilevering forces during intermediate construction stages and reducing temporary propping requirements.
- Reduced Scaffolding Demand: By utilising a steel-framed primary structure rather than cast-in-situ RCC, the requirement for multi-tiered scaffolding across the full bridge span was substantially eliminated. Temporary works were limited to localised support during the composite deck pour.
- Composite Deck Installation: Profiled steel decking was installed following structural steel erection, providing an immediate working platform and subsequently serving as permanent formwork for the concrete topping.

• Expansion Gap Provision: Structural expansion gaps were incorporated between the Sky Bridge and the main tower frames to accommodate differential thermal and seismic movements, in compliance with codal requirements.















7. Key Engineering Benefits and Observed Outcomes

The implementation of the hybrid structural system yielded several measurable engineering and construction benefits over the originally specified all-RCC configuration:

Benefit	Engineering Rationale
Reduced Dead Weight and Seismic Mass	Substitution of steel framing for RCC significantly reduced the self-weight of the Sky Bridge. This directly lowered the seismic inertial forces transmitted to the tower structure, with favourable implications for the tower frame and foundation design.
Elimination of Multi-Stage Scaffolding	The steel erection methodology removed the need for multi-level temporary scaffolding across the open-air bridge span, resulting in reduced construction cost, accelerated programme, and improved site safety.
Accelerated Construction Timeline	Off-site fabrication and rapid on-site erection of structural steel members enabled a significantly faster construction pace, facilitating compliance with the contractual 24-month programme.
Optimised Floor Beam Depth	The use of two-floor deep trusses and Vierendeel frames enabled a reduction in internal floor beam depths, delivering improved floor-to-ceiling heights and enhanced usable headroom within the restaurant spaces.
Improved MEP Service Routing	Shallower floor beams increased the available void between the structural floor and the finished ceiling, providing adequate routing space for mechanical, electrical, and plumbing (MEP) services without the need for offset or penetrations through structural members.
Preservation of Architectural Design Intent	The Vierendeel framing system, with its open rectangular panels devoid of diagonal members, accommodated the architectural vision for an open, column-free restaurant environment without structural compromise.
Material Efficiency	The hybrid system optimised the use of both steel and concrete, deploying each material where its structural properties — high tensile strength for steel in truss members and compressive strength for RCC in core walls — were most effectively utilised.

8. Conclusions

This case study demonstrates that a systematic re-evaluation of structural framing systems — driven by constructability analysis and programme constraints — can yield designs that are superior not only in terms of construction efficiency but also in structural performance and spatial utility.

The Sky Bridge Restaurant Block at World Trade Centre, New Delhi, exemplifies the effective application of a hybrid structural system combining Vierendeel cantilever trusses, RCC core walls, and a composite metal-deck floor — in response to the demanding constraints of a large-scale EPC project in a high-seismic-hazard zone. The resulting structure achieved compliance with the project timeline, reduced seismic vulnerability, improved spatial quality, and optimised material utilisation — attributes that validate the engineering rationale underlying the adopted system.

The lessons derived from this project are applicable to any elevated structure — bridges, sky corridors, transfer floors — where conventional RCC construction would impose unacceptable programme risks, and underscore the value of early constructability review as an integral component of structural engineering practice.

References

1. Bureau of Indian Standards. IS 1893 (Part 1):2016 — Criteria for Earthquake Resistant Design of Structures. BIS, New Delhi, 2016.
2. Bureau of Indian Standards. IS 875 (Part 3):2015 — Wind Loads on Buildings and Structures. BIS, New Delhi, 2015.
3. Bureau of Indian Standards. IS 800:2007 — General Construction in Steel: Code of Practice. BIS, New Delhi, 2007.
4. Narayanan, R. (Ed.). Steel Framed Structures: Stability and Strength. Elsevier Applied Science, London, 1985.
5. Vierendeel, A. Ponts en treillis rigides sans diagonales. Annales des Travaux Publics de Belgique, 1897.

Acknowledgements

The authors acknowledge the contribution of the project team at SACPL, the client's engineering representatives, and the site execution team of NCC Limited for their collaborative efforts in realising the Sky Bridge Restaurant Block within the stipulated programme and quality standards. This project reflects the combined expertise of structural designers, fabricators, and site engineers operating under the rigours of a fast-track EPC environment.

Author Details



Sachin Kumaran
Chief Operating Officer, SACPL
sachin.kumar@sacpl.co
www.sacpl.co

VALUE ENGINEERING IS ALL ABOUT RIGHT THINGS AT RIGHT TIME

By - Er. Satish Patankar and Er. Neelesh Dabholkar

Most typically, Structural engineer for a building project is introduced after the Architectural planning is done already. And the situation becomes worse when Structural engineer for Peer Review of building design is brought in the picture when the planning and structural design of a tower building is already finished. And thus, the sacred activity of Structural design and of peer review gets reduced to mere uncreative exercise of meeting compliances with codal provisions and that too with bitter struggle most of the times. Our experience in this field for last more than two decades tells us that ingenuity lies in onboarding the Structural Engineer and Peer Review Consultant at the right stage of the project which is that of conceptualization!

Design strategies, construction technologies and construction practices usually need to be integrated in the beginning of the project and can't be considered each separately to get a reasonably good end product. In our experience, initial Architectural planning, if done independent of inputs from Structural Engineer's and MEP or construction technology inputs, typically leads to missed opportunities. This applies quite prominently in case of tower buildings where positioning of columns and shear walls and routing of services is of critical importance. Working jointly with Architect and MEP expert right in the planning stage, we as Structural Engineer have not only realized saving in the cost of the project but also achieved more efficient planning of the layouts. A prudent approach therefore is to allow more time in planning and designing rather than in reviewing structural design. Rushing to make construction details in the name of "fast track project" typically ends up in an inefficient design since it does not allow enough time to improve efficiency in planning and designing.

Key factor to achieve design efficiency essentially is "early-stage inputs from Structural designer followed immediately by Design review and peer checks". Defects like inappropriate structural system, redundancy of elements, over-design, under-design, etc can be easily avoided or at least minimized by working together of all the experts right at the stage of conceptual planning. Working shoulder to shoulder with Planning Architect and MEP Consultant, we have been able to eliminate or at least minimize superfluous material and cost consumption in many tower projects. Most prominent example of this is the ability to avoid floating columns. Most Architects take no extra efforts to eliminate or at-least minimize floating columns. On the other hand, an efficient seismic design of a tower building is always gauged by minimum use of floating columns for the obvious reasons! Our experience of working with Planning Architect right at the initial planning stage has been very encouraging in this aspect. Most of our projects are either free from floating columns or with distinctly infrequent use of them.

Higher consumption of reinforcement can be typically avoided by identifying appropriate column locations, by proper sizing of all RCC members and by selecting appropriate grade of concrete. Moreover, apparent higher cost of concrete usually gets set off by the saving in cost of steel which is high energy and high-priced material and thus leads to net saving. Rebar detailing also can be done more

rigorously to minimize wastage in laps and unused/ unusable short pieces of bars. Tabulated rebar arrangement in the construction drawings typically only saves Structural Engineer's time and cost and ends up in consuming more material cost and incorrect placement of bars in RCC structure. Only detailed construction drawings from an Engineering office can add value to monetary cost of precious material like rebar steel.

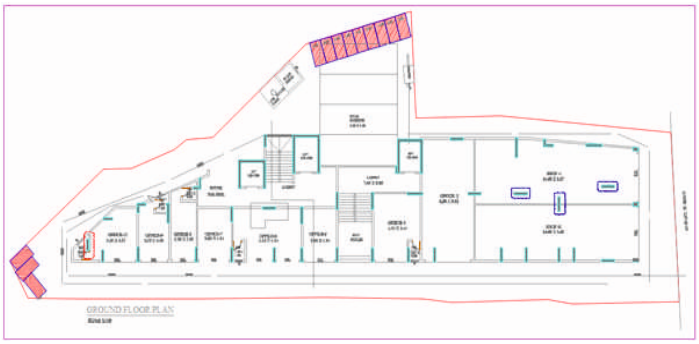
There is another misnomer prevalent in the contemporary construction industry that religious compliance with codes of practice leads to uneconomical construction. More often than not in our experience, compliance with relevant codes can be beneficial in terms of cost optimization. In addition, you get a great satisfaction of uncompromised structural safety of the building that you design with the confidence that it would outlive the expectation of all its stakeholders.

Just to conclude this honest effort to pen down our real-life experience in this field, we may say that the real value of Value Engineering lies in giving adequate time period to right kind of people and allow them to give professional justice to carry out this entire activity. Rushing to get the results mitigates the very purpose of planning, design and peer review. We have seen that the projects that are typically called as 'fast track project', end up in experiencing mockery of this term due to lapses, missed opportunities and time and cost overrun. Root cause of such an eventuality is simply inadequate time and efforts applied in planning and designing stage.

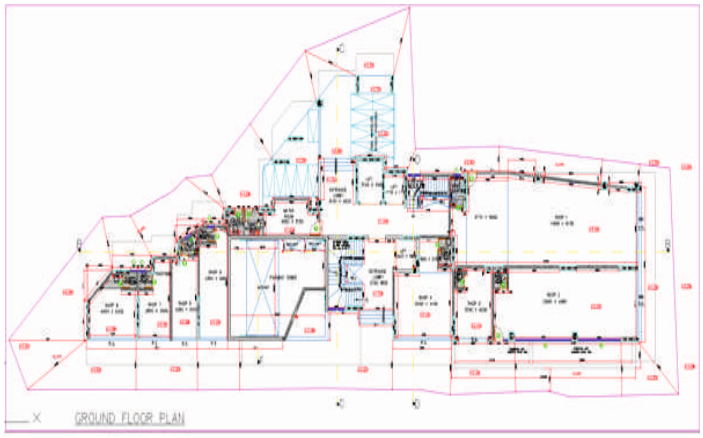
Efficiency, Optimization etc comes through an evolutionary process after engaging the Consultants on a project and only adequate interaction and trust between the various Consultants form the key factor to successful achievement of progress, quality and economy.

We present below briefly an example of how and how much better results we could achieve in one of our own projects. We found a great opportunity to improve the design done by the client's Architect and sitting together with our own associate Architect, we could achieve more sellable area, more efficient functional planning and a much better structural system with cost reduction in RCC work, apart from offering more sellable area. Original design and the modification done by us; along with the benefits we could get for our client are presented below. (Project name and other details are not revealed for the sake of maintaining confidentiality)

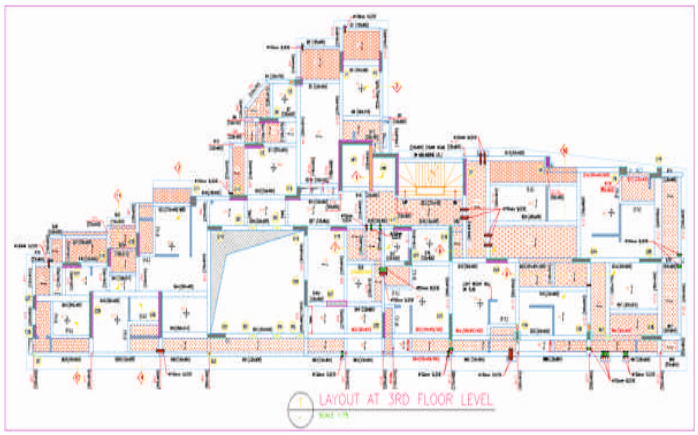
1. Separate basement with two wheeler parking and lift was completely eliminated.
2. Long and narrow drive way to parking tower was shortened substantially.
3. Entrance lobby for commercial as well as residential area was improved.
4. Better open to sky space was created in the niche area.
5. Passage length was reduced and better room sizes were achieved in typical floor.
6. 15% more sellable area was availed by improving the layout.
7. Framing was poor in the original design which was drastically improved.
8. Floating columns were totally avoided by joint working on layout.
9. 15% saving in reinforcement steel was achieved in the project.



Ground Floor Layout As Per Original Design



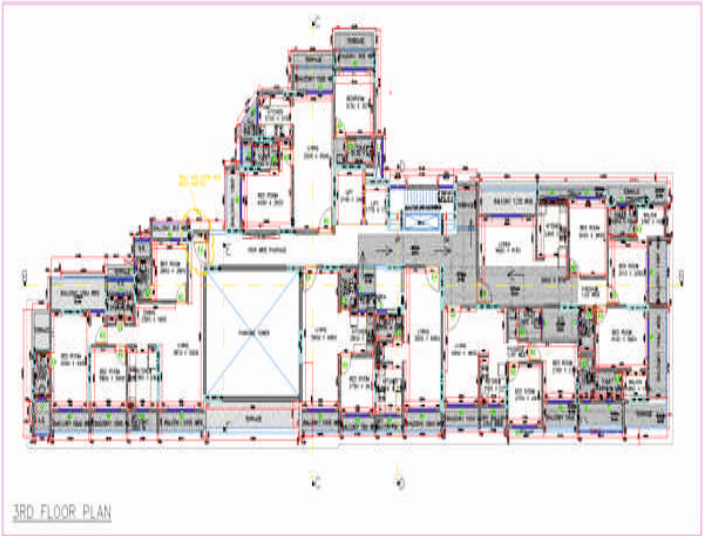
Ground Floor Layout As Per Our Modified Design



Third Floor Rcc Layout (framing Plan)
As Per Our Modified Design



Third Floor Layout As Per Original Design



Third Floor Layout As Per Our Modified Design

About the author



Satish Patankar

satishmp0110@gmail.com
B.E. civil, M.Tech. IITB
Consulting Civil and Structural Engineer

Earlier worked with IITB, Epicons Consultants, Stup Consultants, and 2 years in gulf. Now Director, Ingenuity Civil and Structural Solutions Pvt Ltd

Actively working with couple of social organizations.

Special interests: Marathi Literature, Indian music, Yoga



Mr. Neelesh Dabholkar is a Structural Engineer with over 25 years of professional experience in the efficient planning, analysis, design of residential, commercial, industrial, and institutional projects. He holds a B.E. (Civil) from Bombay University and has worked on numerous landmark projects across India, UAE, and Oman. As a Structural Consultant and Director of Ingenuity Civil And Structural solutions Pvt. Ltd., he focus on innovative designs achieving economical design with safety applying fundamentals of engineering.

OUR POWER, OUR PLANET : TAKING RESPONSIBILITY FOR EARTH'S FUTURE

By Jagdish B. Rele,

For over half a century, Earth Day, observed yearly on April 22, has served as a powerful reminder of the profound interconnectedness between humanity and the natural world — of the delicate balance that sustains us all, and of our responsibility to be stewards of this extraordinary planet we call home.

A Planet at a Critical Juncture

The world today stands at a crossroads. Scientific evidence presents a stark picture of a rapidly changing climate that is challenging established natural norms. India's monsoon season has experienced significant shifts, floods have become increasingly unpredictable, and glaciers are melting at alarming rates worldwide. The signs are impossible to ignore.

What Can We Do?

Education is the first and most powerful step. Raising awareness about how to preserve our planet through simple, achievable actions is by far the most important contribution individuals can make — and it is best started at the kindergarten level, so that environmental consciousness becomes second nature from childhood.

Change also begins at home. Small shifts in consumption habits and transportation choices matter. Maintaining a clean living environment, both indoors and outdoors, is within everyone's reach. Something as simple as separating waste into three categories — wet and compostable, dry and recyclable, and electronic — can make a meaningful difference when practised consistently.

The power of individual action should never be underestimated. During a morning walk in Mumbai, the sight of a young woman discarding a used tissue on the footpath prompted a simple, quiet intervention: picking it up and handing it back with a gentle request to use a bin. Such moments, repeated across millions of daily interactions, are how cultures of care are built.

The Well-being Connection

The health of our planet and the health of its people are deeply intertwined. Regions where nature is nurtured and protected consistently produce populations that live longer, healthier lives. Japan stands as a prime example of this relationship between environmental stewardship and human flourishing.

The Paradox of Progress

Society is increasingly geared towards materialism, and the source of that material wealth is, ultimately, Mother Earth. The more demand there is, the more supply must follow — and with it, the more the Earth is exploited. For centuries, wars have been fought over the Earth's resources, and this pattern continues today.

There is a telling parallel to consider. For the first 20 years of life, we depend on what others provide. For the next 40, we take from the Earth to meet our own needs and ambitions. And then we sit back to enjoy the fruits of that exploitation. The question is whether future generations are expected to repeat this cycle, or whether we are ready to break it.

The COVID-19 pandemic offered a glimpse of an alternative. When human activity was curtailed, nature began to recover with remarkable speed. And yet, as a species, we appear to have learned very little from that experience.

The Built Environment and Its Costs

Architects, engineers, and urban planners occupy a unique position in this conversation. The built environment is constructed from the raw materials of the Earth — cement, bricks, steel, glass — each extracted and transformed at significant environmental cost. Humanity has reshaped the Earth's crust through tunnels, roads, and water infrastructure on a massive scale.

Now, new industries are intensifying that exploitation further. Technologies designed to help — such as electric vehicles and improved electricity storage — carry their own environmental costs. EV batteries, for instance, require raw materials extracted from the Earth, and their disposal at the end of life presents its own challenges. This is the central paradox of our age: the solutions to environmental damage often create new forms of it. Future generations will need to find a balance between resource use and preservation.

The Case for Conservation Over Demolition

Under the guise of "development," old structures are continuously razed and replaced with high-rise towers requiring enormous material and energy inputs. This model of progress demands scrutiny. Retaining and restoring existing buildings is not only more sustainable — it also preserves the cultural and heritage fabric of our cities, eases pressure on existing infrastructure, and avoids the overcrowding that large-scale new construction brings.

Challenges for the Next Generation

Several major challenges will define the coming decades. Climate resilience must be designed into all new infrastructure. Resource management must grapple with the finite nature of what the Earth can provide. Biodiversity conservation must be integrated into development decisions. And sustainable urban planning must guide the expansion of cities that are growing faster than ever before.

These are not abstract concerns — they are the defining professional and civic responsibilities of this era.

Rooted in India

Long before the global Earth Day movement was established in 1970, India had its own tradition of environmental consciousness. The Van Mahotsav movement, founded in 1950 by the late Shri K. N. Munshi — who also founded the Bharatiya Vidya Bhavan educational trust in 1938 — emphasised the importance of forests and the urgent need for afforestation. India's environmental heritage runs deep; the challenge is to honour and extend it.

A Call to Action

The time for reflection must give way to action. Each of us has the capacity to take ownership, make better choices, change our own habits, and lead by example. By gently encouraging those around us to do the same, and by demanding that institutions and governments implement policies that support circular economies and energy-efficient design, we can collectively make a difference.

Our time on this planet is finite and precious. Let us use it wisely — for the sake of the generations who will inherit what we leave behind.

Oh, bless you, dear Mother Earth!

About the author



Jagdish Rele,
Founder and CEO, Chaiam Consultants, Mumbai.
He has vast experience of four decades in planning, designing, monitoring and executing large projects. He worked as senior Project Manager (International Real Estate) for World Bank and handled various international projects.
Email: rele@chaiam.com

NEWS AND EVENTS DURING APR – JUNE 2026

by Er. Vatsal Gokani

3 April 2026 : The publication of the revised IS 1893:2025 – Criteria for Earthquake Resistant Design of Structures generated extensive discussion within the structural engineering fraternity across the country. In view of the technical concerns expressed by practicing engineers and academicians, the Indian Association of Structural Engineers (IAStructE) organized an online panel discussion on 3 April 2026 to deliberate on the implications of the revised code and the subsequent decision regarding its withdrawal.

The panel discussion brought together senior structural consultants, academicians, researchers, code committee members and practicing engineers from different parts of India. The objective of the programme was to provide a common platform for understanding the reasons behind the revisions introduced in the new code, the technical issues identified by practicing engineers and the possible way forward for future revisions.

Several important aspects of seismic design were discussed during the programme, including revisions to the seismic hazard model, response spectra, design philosophy, implementation issues and practical implications for ongoing and future projects. The speakers emphasized that while the revised code incorporated significant advances in earthquake engineering, its successful implementation required wider technical discussions and greater clarity on several provisions affecting day-to-day design practice.

The programme witnessed active participation from engineers across the country, reflecting the profession's keen interest in ensuring that India's seismic design standards continue to evolve based on sound scientific principles while remaining practical and implementable. The panel discussion reaffirmed the importance of professional institutions in facilitating constructive dialogue between researchers, practicing engineers and code-writing committees.

---

9 April 2026 : The Department of Civil and Environmental Engineering and the Department of Structural Engineering, Veermata Jijabai Technological Institute (VJTI), Mumbai, successfully organized the Inauguration Ceremony of the Indian Society of Structural Engineers (ISSE) Student Chapter on 9 April 2026. The establishment of the Student Chapter marked a significant milestone in strengthening collaboration between academia and the structural engineering profession while creating a platform for the professional development of aspiring structural engineers.

The programme commenced with a warm welcome by the faculty members of VJTI, who emphasized the importance of professional institutions in complementing classroom education through technical lectures, industrial interaction, seminars and continuing education programmes. The formation of the Student Chapter reflects the shared commitment of VJTI and ISSE towards developing technically competent and professionally responsible structural engineers.

The inaugural function was attended by several distinguished guests representing both academia and industry. The chief guests and invited experts included Er. Vatsal Gokani, Director, Gokani Consultants, Mumbai; Er. Yogesh Patil, Head – Structural Design, Birla Estates; Er. Omkar Chury, Technical Manager – Structural Retrofitting (West), Fischer India; Dr. Tanuja Bandivadekar, Technical Committee Member, ISSE; Er. Ankit Asher, Technical Committee Member, ISSE; and Er. Chirag Jain, Technical Committee Member, ISSE. Their presence highlighted the strong support extended by practicing professionals towards nurturing the next generation of structural engineers.

During the technical interaction, the speakers shared their professional experiences and highlighted the rapidly evolving role of structural engineers in modern infrastructure development. Students were encouraged to develop strong fundamentals in structural analysis and design while simultaneously acquiring practical knowledge through industry interaction and participation in professional activities. The speakers emphasized that continuous learning, ethical engineering practice, and effective communication are essential attributes for successful structural engineers.

The representatives of ISSE introduced students to the objectives and activities of the Society, including technical lectures, conferences, workshops, student webinars, publications, and opportunities for interaction with leading practicing engineers. Students were encouraged to actively participate in these programmes to broaden their understanding beyond the academic curriculum and remain updated with the latest developments in structural engineering.

The establishment of the Student Chapter is expected to facilitate regular technical activities, industrial visits, expert lectures, competitions and interactions with practicing engineers. Such initiatives will provide students with valuable exposure to real-life engineering challenges and contemporary design practices while strengthening the connection between academic institutions and the engineering profession.

The programme concluded with a High Tea sponsored by Fischer India, providing an excellent opportunity for students, faculty members and industry experts to interact informally, exchange ideas and strengthen professional relationships. The inauguration marked another significant step in ISSE's continued efforts to expand its student outreach programme and encourage greater participation of young engineers in professional activities.



12 April 2026 : Prof TG Sitaram delivered 25th DG Dhavlikar memorial lecture on “Engineering Eternity: Foundation strategy & Geotechnical innovation adopted for The Shri Ram Mandir, Ayodhya”, ISSE Indore Centre was one among the supporting organization for this annual flagship lecture of ASE, Indore



25 April 2026 : Continuing its successful series of student-oriented technical programmes, the Indian Society of Structural Engineers organized its 11th Technical Webinar for Students on 25 April 2026. The webinar featured an expert lecture on "Prestressing in Bridges – Activities, Issues & Remedial Measures" delivered by Shri N. N. Bandhu, an eminent Bridges and Metro Rail Expert from Navi Mumbai.

Prestressed concrete has become one of the most widely adopted structural systems for modern bridge construction because of its ability to achieve longer spans, improved durability and enhanced serviceability. During the lecture, Shri Bandhu provided a comprehensive overview of prestressing techniques used in bridge engineering and explained how these systems have transformed the design and construction of transportation infrastructure in India.

The presentation covered the complete lifecycle of prestressed bridge construction, beginning with planning and design considerations, selection of suitable prestressing systems and detailing requirements, and extending through construction methodology, quality control, inspection and long-term maintenance. Participants were introduced to the practical aspects of tendon layout, stressing operations, anchorage systems and the importance of minimizing prestress losses during construction.

Drawing upon his extensive professional experience in bridge and metro rail projects, Shri Bandhu discussed several practical issues encountered during execution, including construction tolerances, tendon grouting, durability concerns, corrosion protection and inspection of aging prestressed structures. He also explained various remedial measures adopted to address distress observed in existing bridges and emphasized the importance of timely maintenance in extending the service life of critical transportation infrastructure.

The webinar attracted enthusiastic participation from engineering students and young professionals across the country. The interactive question-and-answer session enabled participants to clarify practical aspects of bridge engineering and provided valuable insights into one of the most important technologies used in modern transportation infrastructure. The programme further strengthened ISSE's commitment towards providing high-quality technical education for engineering students through its continuing webinar series.



4 May 2026 : The Indian Society of Structural Engineers deeply mourned the passing of Er. Arun B. Karnik, one of India's most respected structural consultants and a distinguished authority in the field of structural steel design. Er. Karnik passed away on 4 May 2026 at Pune, leaving behind an extraordinary professional legacy spanning several decades.

Widely regarded as an innovative structural engineer, Er. Karnik was known for developing elegant and practical engineering solutions for highly complex construction challenges. Throughout his distinguished career, he designed numerous industrial structures, marine piling gantries and bridge supporting structures, demonstrating exceptional technical competence and engineering creativity.

Apart from his professional practice, Er. Karnik made significant contributions to engineering literature through numerous technical articles published in the ISSE Journal, Loksatta and through the Marathi Vidnyan Parishad. He also delivered technical lectures at several conferences and professional forums, inspiring generations of practicing engineers and young professionals.

His outstanding contributions to civil engineering were recognized through several prestigious honours, including the S. B. Joshi Memorial Award, the ACCE Simplex Award, and numerous other recognitions for excellence in structural engineering.

ISSE conveyed its heartfelt condolences to his wife, three daughters and family members. The Society expressed its gratitude for his immense contribution to the profession and prayed that his noble soul attain eternal peace. Om Shanti.



15 May 2026 : We are deeply saddened by the passing of Shri Savla. Shri Savla was a man of few words but immense action. Though very silent by nature, he was instrumental in the growth of ISSE and served as a Trustee for more than 25 years with unwavering dedication and integrity. His quiet leadership, commitment, and selfless service laid a strong foundation for the institution we see today. We extend our heartfelt condolences to his family. May they find strength and solace during this difficult time. His contributions will be remembered and cherished by all of us at ISSE.

16 May 2026 : As part of its continuing initiative to promote technical excellence and encourage knowledge sharing among practicing engineers, the Indian Society of Structural Engineers – Baramati Local Center (ISSE BLC) successfully organized StructoConnect Tech Series – 06 on 16 May 2026 through the Google Meet platform. The online technical session was conducted from 7.00 PM to 8.00 PM and focused on the timely and highly relevant topic "Sustainable Construction Materials." The resource person for the programme was Dr. Nagesh Suryawanshi, Assistant Professor, Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati.

The programme was organized with the objective of creating greater awareness among civil and structural engineers regarding sustainable construction practices and the increasing need to adopt environmentally responsible engineering solutions. With the construction industry facing growing pressure to reduce carbon emissions, conserve natural resources and improve lifecycle performance of infrastructure, the session addressed one of the most significant challenges facing the profession today.

Dr. Suryawanshi commenced his lecture by explaining the concept of sustainability in construction and its importance in achieving long-term environmental, economic and social objectives. He highlighted that modern structural engineers are no longer expected to design only safe and economical structures but are increasingly responsible for reducing the environmental footprint of construction activities. The session emphasized that sustainability must become an integral part of planning, material selection, structural design and construction methodology.

The lecture presented a comprehensive overview of several sustainable construction materials that are increasingly finding acceptance in modern engineering practice. These included fly ash-based concrete, ground granulated blast furnace slag (GGBS), silica fume, recycled aggregates, manufactured sand, geopolymer concrete and other supplementary cementitious materials. The speaker explained how the appropriate use of these materials can significantly reduce cement consumption, lower greenhouse gas emissions and improve durability without compromising structural performance.

Particular emphasis was placed on the role of industrial by-products in producing high-quality concrete with improved long-term performance. Dr. Suryawanshi discussed how fly ash and slag-based concrete have been successfully adopted in large infrastructure projects because of their improved durability, lower permeability and enhanced resistance to aggressive environmental conditions. He also explained the engineering properties of recycled aggregates and the practical considerations involved in incorporating them into structural concrete.

The programme included several practical examples and case studies illustrating successful implementation of sustainable construction materials in real engineering projects. Examples included the use of fly ash concrete in major infrastructure works, adoption of recycled aggregates in road construction, and projects demonstrating both cost savings and improved performance through sustainable material selection. These examples helped bridge the gap between theoretical concepts and practical implementation.

Dr. Suryawanshi also discussed the practical challenges that currently limit widespread adoption of sustainable construction materials. These included lack of awareness among practicing engineers, misconceptions regarding initial costs, inconsistent material quality, absence of standardized specifications in certain applications and the need for wider codal acceptance. He stressed that continued research, field validation and training programmes are essential to overcome these barriers and accelerate the transition towards greener construction practices.

Looking towards the future, the speaker emphasized the importance of developing innovative eco-friendly materials, integrating sustainability into structural design from the conceptual stage, strengthening government policies that encourage sustainable construction and organizing continuous awareness programmes for practicing engineers. He observed that sustainability should not be viewed merely as an environmental requirement but as an engineering responsibility that enhances the long-term performance and resilience of structures.

The lecture concluded with an interactive Question-and-Answer session, during which participants actively discussed issues such as the cost implications of green materials, comparison between conventional and sustainable construction materials, local availability, long-term durability, maintenance aspects and implementation challenges in small and medium-scale projects. Dr. Suryawanshi responded to each query with practical examples drawn from his academic and professional experience, making the discussion highly informative and relevant to practicing engineers.

Participants appreciated the technical depth of the programme and acknowledged that the webinar successfully enhanced awareness regarding sustainable construction practices. The session effectively fulfilled its objective of promoting technical excellence, innovation and environmental responsibility, fully aligning with the vision and mission of the Indian Society of Structural Engineers. The ISSE Baramati Local Center expressed its sincere appreciation to Dr. Nagesh Suryawanshi for delivering an insightful lecture, to all participants for their enthusiastic interaction, and to the organizing committee for successfully conducting the programme.

19 May 2026 : The Indian Society of Structural Engineers (ISSE) further strengthened its academic outreach programme with the inauguration of the ISSE Student Chapter at Tatyasaheb Kore Institute of Engineering and Technology (TKIET), Warananagar, on 19 May 2026. The occasion also marked the signing of a Memorandum of Understanding (MoU) between ISSE and the Institute, establishing a formal framework for long-term collaboration in technical education, professional development and industry interaction.

The inauguration ceremony was attended by the institute management, faculty members, ISSE office bearers, practicing structural engineers and students. The programme highlighted the importance of connecting engineering education with professional practice and creating opportunities for students to interact directly with experienced structural engineers.

The MoU aims to facilitate regular technical lectures, workshops, seminars, industrial visits, student competitions and collaborative programmes between ISSE and TKIET. Through this partnership, students will gain exposure to contemporary structural engineering practices, advances in design codes, emerging construction technologies and professional ethics.

The dignitaries emphasized that such collaborations are essential for preparing engineering graduates to meet the rapidly changing demands of the construction industry. Students were encouraged to actively participate in ISSE activities, contribute to technical discussions and develop a habit of continuous professional learning.

The programme concluded with an interaction between students and industry professionals, during which career opportunities, research prospects and future developments in structural engineering were discussed. The inauguration of the Student Chapter represents another important milestone in ISSE's continued efforts to strengthen industry–academia collaboration and encourage greater participation of young engineers in professional activities.



22 May 2026 : A special technical programme combining professional learning with remembrance was organized on 22 May 2026 at the Institution of Engineers (India), Maharashtra State Centre, Mahalaxmi, Mumbai. The event featured a technical lecture on "High Strength High Performance Concrete" and was dedicated to the memory of Late Er. Arun B. Karnik and Late Er. Karamchand Savla, Trustee of ISSE. The programme was jointly organized by the Indian Society of Structural Engineers (ISSE), the Institution of Engineers (India), Maharashtra State Centre, and the Indian Society of Earthquake Technology (Mumbai Local Centre), with sponsorship from UltraTech Cement Ltd.

The programme witnessed an enthusiastic gathering of nearly 100 practicing engineers, consultants, academicians and industry professionals. The distinguished dais comprised Er. Hemant Vadalkar, President, ISSE; Er. Ranganath Satam, Hon. Secretary, ISSE; Er. Shantilal Jain, Chairman, ISET Mumbai Chapter; Er. Ashwin Moghe, Head – Technical, Key Customer, UltraTech Cement Ltd.; Er. Navnath Ghadge, Convener, Civil Engineering Division, IEI Maharashtra State Centre; Er. Aravind Shrivastava, Hon. Secretary, ISET Mumbai Chapter; and Er. Vijay Kamble, Chairman, IEI Maharashtra State Centre.

The programme commenced with a welcome address by Er. Hemant Vadalkar, who welcomed the delegates and presented an overview of ISSE's recent initiatives in technical education, student outreach and professional development. This was followed by remarks from Er. Navnath Ghadge, who highlighted the activities of the Institution of Engineers (India) and emphasized the importance of collaboration between professional bodies in advancing engineering knowledge.

A solemn tribute session was then held in memory of Late Er. Arun B. Karnik and Late Er. Karamchand Savla. Heartfelt tributes were delivered by Er. Hemant Vadalkar, Er. Shantilal Jain, Prof. Tanuja Bandivadekar, and Mr. Ghate, while family members of both the Karnik and Savla families also shared their memories and appreciation of the invaluable contributions made by the two stalwarts. Messages received from eminent personalities including Dr. Vijay Gupchup, Dr. V. V. Nori, and Er. Jayant Kulkarni were read out by Er. Hemant Vadalkar, reflecting the deep respect commanded by both personalities within the structural engineering fraternity.

The technical highlight of the evening was the lecture on "High Grade High Performance Concrete" delivered by Er. Ashwin Moghe, Head – Technical, Key Customer, UltraTech Cement Ltd. Drawing upon extensive industry experience, Er. Moghe explained the evolution of high-performance concrete and its increasing importance in the construction of tall buildings, long-span bridges, industrial facilities and critical infrastructure. He discussed the characteristics of high-strength concrete, optimized mix design, durability considerations, workability, quality control and the role of supplementary cementitious materials in achieving superior performance.

The lecture also covered practical aspects such as selection of constituent materials, control of heat of hydration, durability under aggressive environmental conditions, pumping of high-strength concrete and quality assurance during production and placement. Through project examples, Er. Moghe demonstrated how properly designed high-performance concrete contributes to enhanced structural durability, reduced maintenance requirements and improved lifecycle economy. The lecture generated considerable interest among the participants, particularly practicing consultants involved in large infrastructure and high-rise projects.

The technical presentation was followed by an interactive question-and-answer session, during which participants discussed practical issues related to mix proportioning, field quality control, long-term performance and applications of high-strength concrete in Indian construction practice. The programme concluded with a formal Vote of Thanks acknowledging the organizers, sponsors, speakers and the large gathering of engineering professionals whose participation made the event a memorable success. A group photograph marked the conclusion of an evening that successfully combined technical excellence with respectful remembrance of two distinguished members of the engineering profession.



23 May 2026 : Continuing its commitment towards disseminating practical engineering knowledge among students and young professionals, the Indian Society of Structural Engineers (ISSE) organized its 12th Technical Webinar for Students on 23 May 2026. The webinar focused on "Precast Tunnel Segments – Design, Manufacturing and Construction", an area of growing importance owing to the rapid expansion of metro rail systems, underground transportation networks and utility tunnels across India.

The expert speaker introduced participants to the role of precast concrete tunnel segments in mechanized tunnelling using Tunnel Boring Machines (TBMs). The lecture explained how precast segmental linings have transformed underground construction by enabling faster construction, improved quality control, enhanced durability and safer execution compared with conventional cast-in-situ techniques.

The presentation covered the complete lifecycle of tunnel segment construction, beginning with structural design considerations, reinforcement detailing, manufacturing processes, dimensional tolerances, quality assurance and storage procedures. The speaker explained the importance of achieving stringent dimensional accuracy to ensure proper assembly of the tunnel lining during TBM operations.

Participants were introduced to practical aspects of segment erection, gasket installation, bolted connections, waterproofing systems and quality control during tunnel construction. Various factors influencing the structural behaviour of tunnel linings—including earth pressure, groundwater pressure, surcharge loading and construction tolerances—were also discussed.

Several examples from metro rail and underground infrastructure projects were presented to demonstrate the practical application of precast technology. The webinar concluded with an interactive discussion during which students sought clarification on manufacturing processes, durability considerations, inspection requirements and future developments in mechanized tunnelling. The programme once again demonstrated ISSE's commitment towards exposing students to modern construction technologies adopted in major infrastructure projects.

3–5 June 2026 : Members of the Indian Society of Structural Engineers participated in Concrete Show India 2026, held from 3 to 5 June 2026 at the Bombay Exhibition Centre, Goregaon, Mumbai. The exhibition brought together leading manufacturers, consultants, contractors, equipment suppliers and technology providers associated with the concrete and construction industry.

The event showcased the latest developments in concrete technology, construction chemicals, precast systems, formwork, scaffolding, repair and rehabilitation materials, testing equipment and digital solutions for the construction industry. Engineers had the opportunity to interact with manufacturers and technical experts while gaining first-hand exposure to recently introduced products and construction technologies.

Several live demonstrations and technical presentations highlighted innovations aimed at improving construction quality, productivity and sustainability. The exhibition also provided an excellent networking platform where practicing engineers exchanged ideas with industry leaders regarding future trends in concrete construction and infrastructure development.

Participation in such exhibitions enables structural engineers to remain updated with emerging materials, construction methodologies and technological innovations, thereby contributing to continuous professional development.

6 June 2026: collaborative initiative between EFC – Epicons Friends of Concrete and ISSE – Indian Society for Structural Engineers. The webinar, sponsored by SCON Infra Prestress LLP, focused on the theme “Complex Structures & Innovative Solutions – Base Isolators for Earthquake Resistant Design and Performance,” highlighting the importance of resilient infrastructure and advanced seismic protection technologies.

The program featured expert presentations by Dr. Anoop Mokha (EPS USA), Prof. Dr. Vasant Matsagar (IIT Delhi), and Prof. Manohar Gadgil, who shared valuable insights ranging from global applications and theoretical foundations to practical case studies. The event was effectively coordinated by

Er. Jayant Kulkarni, Er. Hemant Vadalkar, Er. Arvind Parulekar, andEr. Anand Kulkarni, and concluded with interactive discussions that enhanced the engineering community's understanding of modern earthquake-resistant design.

12 June 2026 : The ISSE Navi Mumbai Centre, in association with the Institution of Engineers (India), Navi Mumbai Centre, organized an enriching technical lecture on 12 June 2026 at the Institution of Engineers Auditorium, Belapur. The programme commenced with a floral tribute to Bharat Ratna Sir M. Visvesvaraya, honouring his immense contribution to engineering and nation-building.

The session began with a welcome address by Dr. K. M. Godbole, President of ISSE Navi Mumbai Centre, who welcomed the distinguished guests and participants. He highlighted the objectives of the programme and emphasized the role of ISSE in promoting technical excellence through continuing professional education.

Er. Shantilal Jain, Immediate Past President of ISSE Mumbai and Chairman of the Indian Society of Earthquake Technology (Mumbai Chapter), addressed the gathering and spoke about the contribution of ISSE towards advancing structural engineering knowledge through technical lectures, conferences, workshops and student activities. His address encouraged practicing engineers to remain actively involved in professional institutions and continuing education.

The audience was further inspired by Dr. Mohan B. Dagaonkar, former Chief Engineer of Navi Mumbai Municipal Corporation and former Chairman of both IEI Maharashtra State Centre and ISSE Navi Mumbai Centre. Drawing upon his vast professional experience, he emphasized the importance of sound engineering judgment, ethical practice and continuous learning throughout an engineer's career.

Er. Hemant Vadalkar, President of ISSE Mumbai, briefly presented the recent activities and achievements of ISSE, highlighting the Society's expanding technical programmes, student chapters and collaborations with academic institutions and other professional organizations. His address reaffirmed ISSE's commitment to strengthening technical education and professional development across the country.

The highlight of the evening was the detailed technical presentation on "Selection of Efficient Structural Systems for Low, Medium and High-Rise Buildings" delivered by Er. Shekhar Ghate, eminent structural consultant and Director of Optimal Consultancy Services Pvt. Ltd. The lecture examined the engineering principles governing the selection of structural systems for buildings of varying heights and functional requirements.

Er. Ghate explained that the choice of an appropriate structural system significantly influences safety, economy, constructability and long-term performance. Through practical examples, he compared moment-resisting frames, shear wall systems, dual systems, braced frames and outrigger systems, discussing their suitability for different building configurations and loading conditions. The lecture also highlighted the importance of architectural planning, regularity of structural configuration, efficient load paths and appropriate foundation systems in achieving optimum structural performance.

The presentation generated considerable interest among the participants, who appreciated the balanced combination of theoretical concepts and practical design experience. The lecture concluded with an engaging discussion on challenges encountered in contemporary high-rise construction and strategies for selecting efficient structural systems under varying project constraints.

Following the technical lecture, Er. Rohit Pandya of UltraTech Cement Ltd. delivered a brief but informative presentation on the company's range of construction materials, products and technical services available for the building industry. The session introduced participants to recent developments in construction materials and highlighted UltraTech's technical support initiatives for structural engineers and contractors.

The programme was efficiently anchored by Er. Vijay Kamble, Chairman of IEI Maharashtra State Centre. The Vote of Thanks was proposed by Er. Sabu K. Scaria, Hon. Secretary, ISSE Navi Mumbai Centre and Director of Eco-Safe Consulting Engineers, Belapur, who expressed gratitude to the speakers, organizers, sponsors and participants for making the event a success. Sponsored by UltraTech Cement Ltd., the programme concluded with an informal networking dinner, providing participants an opportunity to interact with fellow professionals and exchange technical experiences.



18–19 June 2026 : ISSE members actively participated in the National Conference organized by the Association of Consulting Civil Engineers (India) [ACCE(I)], held at Vashi, Navi Mumbai, on 18–19 June 2026. The conference brought together consulting engineers, academicians, contractors, developers and representatives from government organizations to deliberate on emerging challenges and opportunities in the infrastructure sector.

Technical sessions covered a wide spectrum of contemporary engineering topics including structural design, transportation infrastructure, geotechnical engineering, sustainability, construction management and digital technologies. The conference also provided an excellent platform for networking, exchange of technical ideas and interaction between experienced consultants and young professionals.

Participation in such national forums enables ISSE members to remain updated with evolving engineering practices while strengthening collaboration with other professional organizations working towards the advancement of civil and structural engineering.

20 June 2026 : To commemorate the 12th International Yoga Day, the Indian Society of Structural Engineers – Baramati Local Center, in association with UltraTech Ltd., organized a vibrant Yoga Day celebration on 20 June 2026 at Krida Sankul, Baramati. The programme reflected ISSE's belief that professional excellence must be complemented by physical fitness, mental well-being and a balanced lifestyle.

The event was graced by Ms. Nilima Solaskar, a renowned wellness expert, who guided participants through a series of yoga postures, breathing exercises and mindfulness practices designed to improve physical health and mental concentration. Members of the ISSE Baramati Local Center actively participated in the programme, demonstrating their commitment towards healthy living and holistic development.

The session commenced with an introductory address emphasizing the global significance of International Yoga Day and its relevance in today's demanding professional environment. Ms. Solaskar's systematic guidance created an atmosphere of discipline, peace and positivity, encouraging participants to integrate yoga into their daily routine.

The programme witnessed enthusiastic participation from ISSE members, engineers, students and well-wishers. The presence of Mr. Vikas Patil, representatives from UltraTech Cement Ltd., and office bearers of ISSE Baramati Local Center further added to the significance of the event.

The organizers expressed their sincere gratitude to all participants, volunteers and sponsors, particularly UltraTech Cement Ltd., for their valuable support in making the programme a success. The celebration reinforced the importance of yoga in maintaining physical fitness, mental well-being and professional efficiency, reflecting ISSE's commitment towards the overall development of its members.

25–26 June 2026 : Representatives of the Indian Society of Structural Engineers attended Steel Day 2026, organized by the Steel Structures and Metal Buildings (SSMB) fraternity on 25–26 June 2026 at the Jio World Convention Centre, Mumbai.

The event brought together structural consultants, steel manufacturers, fabricators, contractors, architects and researchers to discuss recent developments in structural steel design, fabrication technology and modern construction practices. Technical presentations focused on advancements in steel construction, innovative structural systems, sustainability, fire engineering, digital fabrication and future opportunities for steel-intensive construction in India.

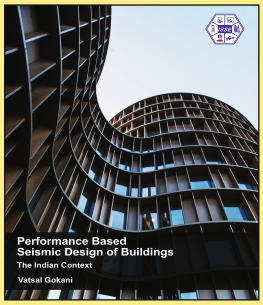
The conference also featured exhibitions by leading steel manufacturers and technology providers, showcasing modern products, fabrication techniques and software tools for structural engineering applications. The event provided an excellent platform for professional interaction, knowledge exchange and strengthening collaboration between consulting engineers and the steel construction industry.

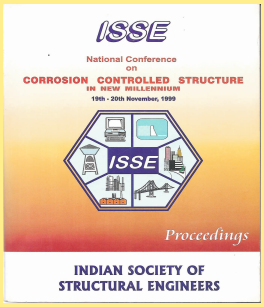
26 June 2026 : Er DS Parihar delivered 102nd lecture on “Design & Execution in Construction- Challenges & Solutions” at Dewas, ISSE Indore Centre jointly organizes this monthly lecture series with ASE Indore & ACCE, Indore Center.

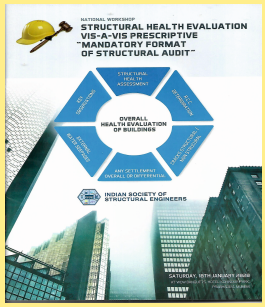


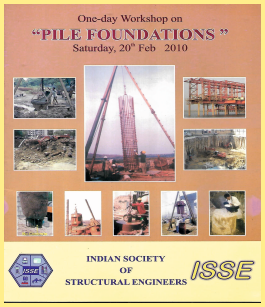
Edited and published by Vatsal Gokani for ISSE, C/o, Maansi Nandgaonkar, 101, Sunflower, Sakharam Keer Road, Shivaji Park, Mahim, Mumbai - 400016. Tel 022-2431 4423. e-mail issehq@hotmail.com Web : www.isse.org.in for private circulation and printed by G. B. Gawde, 142 Anand Estate, S. G. Marg, Chinchpokli, Mumbai 400 011.

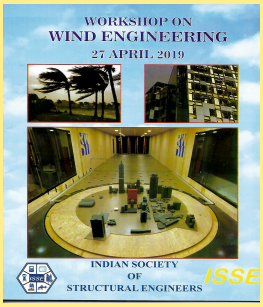
OUR PUBLICATIONS

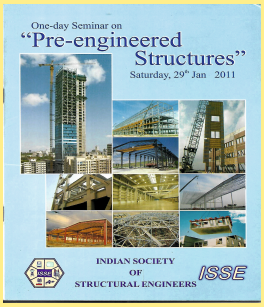


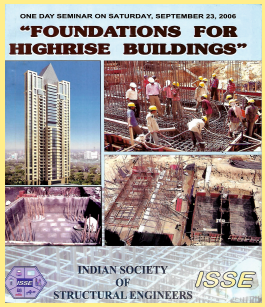


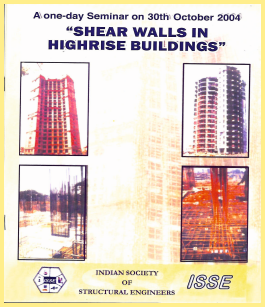


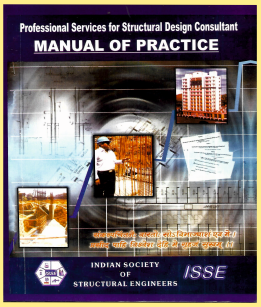




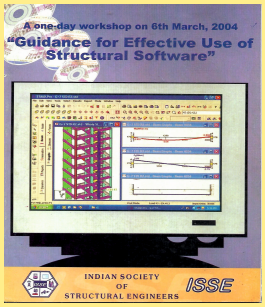








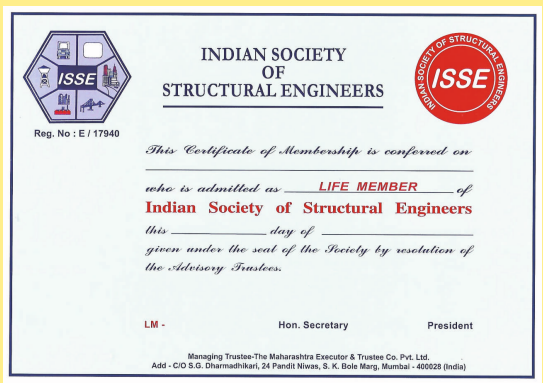




AND MANY MORE

For more information contact on
E-Mail :- issehq@hotmail.com
Web Site :- www.isse.org.in





Membership Certificate



Hemant Vadalkar felicitating Dr. K Suresh Kumar



Delegates attending the workshop

LET US BUILD A STRONG STRUCTURE OF INDIAN SOCIETY

TATA STEEL
WeAlsoMakeTomorrow

TATA

BUILD SMART, BUILD EASY

INDIA'S FIRST BRANDED WELDED WIRE FABRIC

Sm@rtFAB



WHAT MAKES Sm@rtFAB FUTURE-READY FOR YOUR CONSTRUCTION?

- Saves Time
- Reduces Cost
- Optimises Design
- Helps Work Smarter
- Provides Quality

APPLICATIONS















For enquires, mail your details at

East: **lpeast@tatasteel.com** | West: **lpwest@tatasteel.com** | North: **lpnorth@tatasteel.com** | South: **lpsouth@tatasteel.com**

Contact: **Mr. Akshat Kumar** ✆ **7903530188, Mr. Parag Ishwardas Raut** ✆ **9619114344**

readybuild.tatasteel.com