Technical Report

A One-Day Workshop on "Understanding IS-1893(Part-1 and Part-5): 2025 for Seismic Design of Buildings", was successfully organized collaboratively by the School of Engineering and Technology Shivaji University, Indian society for structural Engineers (ISSE) Kolhapur center, and Walchand College of Engineering, Sangli. The workshop aimed to create awareness and enhance technical knowledge about the latest revisions in India's seismic design code and their practical implementation in structural engineering.

1. Inauguration Function (10.0 am-10.30 am)

The workshop commenced with an inaugural ceremony in the presence of distinguished dignitaries, faculty members, practicing engineers, and students.

The function was graced by:

- **Dr. Surendra Rathod**, Director, WCE Sangli, who emphasized the importance of updating knowledge in seismic design practices.
- **Dr. A. B. Kolekar**, I/C Director, SET, who highlighted the importance of industry–academia interaction.
- **Er. Prashant Hadkar**, who spoke about the role of professional organizations in technical capacity building.
- **Er. Tushar Burud**, Superintending Engineer, PWD, who shared practical perspectives on seismic safety in infrastructure projects.

All dignitaries appreciated the initiative and encouraged participants to apply the updated seismic provisions in practice.

2. Technical Sessions

The workshop featured expert lectures by eminent speakers:

Pre-lunch session- 1

The first technical session was delivered by **Dr. Yogendra Singh**, Professor at **IIT Roorkee**. He provided an in-depth explanation of:

- Philosophy behind seismic design codes
- Major revisions in IS 1893-2025
- Performance-based considerations
- Practical interpretation of code provisions

In his lecture, **Dr. Yogendra Singh** also emphasized the **importance of seismic design in India**, considering the country's significant earthquake risk and rapid urban development. He highlighted the need for strict adherence to updated seismic codes to ensure safety and resilience of structures.

He further explained the **dynamic behavior of buildings during earthquakes**, including:

- How ground motion induces vibrations in structures
- The concept of natural period, resonance, and damping
- Distribution of inertia forces along the building height

- Differences in response of low-rise, mid-rise, and tall buildings

The session specifically covered:

- Introduction of **IS 1893 (Part 1): General Provisions (Seventh Revision)** and **Part 5: Buildings**.
- Revision of the **seismic zoning map** of India.
- Adoption of **probabilistic seismic hazard assessment (PSHA)**.
- Modification of the **design response spectrum**, including extension up to **10 seconds** and changes in its shape, particularly in the **long-period (displacement-dominated) region** to better represent the response of tall and flexible structures.
- Revision of **damping coefficients**.
- Updated **site classification system**.
- Changes in **importance factors** for various categories of structures.
- Inclusion of provisions related to **vertical seismic accelerations** in design.
- Updates in **seismic load combinations**, providing clearer guidance for combining earthquake effects with gravity and other loads in structural design.
- The need for **special design checks** for flat slab systems under earthquake loading. Consideration of **lateral load–resisting systems** along with flat slabs.
- Use of **dummy columns (or equivalent stiffness elements)** in analytical modeling to properly represent stiffness, load paths, and realistic seismic force distribution in flat slab structures.
- The session provided clear insights into the intent, technical basis, and practical implications of these revisions for seismic design.

Pre-lunch session

The second session was conducted by **Dr. Vijay Khose**, Vice President at **Thornton Tomasetti**,Pune

He focused on:

- Industry perspectives on seismic design
- International practices and comparison with Indian codes
- Case studies of real structural projects
- Implementation challenges in practice

His lecture effectively bridged the gap between academic concepts and real-world engineering applications.

Post-Lunch Technical Session

In the post-lunch session, **Dr. Yogendra Singh** delivered an insightful lecture on **Earthquake-Resistant Design of Structures**. The session focused on practical design principles, ductile detailing, and modern seismic design approaches. He specifically discussed:

- The **importance of ductile design**, emphasizing the need for structures to undergo large deformations without sudden failure during earthquakes.

- Methods to **achieve ductility**, including proper detailing practices and adherence to seismic design provisions.
- The significance of **reinforcement confinement** in improving strength, ductility, and energy absorption capacity.
- The **strong column–weak beam philosophy** to ensure desirable failure mechanisms and prevent structural collapse.
- Important aspects of **shear wall detailing** for enhanced stiffness and seismic performance.
- The **energy dissipation mechanism in structures**, explaining the formation of plastic hinges and controlled inelastic behavior.
- **Special considerations for energy dissipation in flat slab buildings:** In buildings with flat slabs (i.e., slabs without beams), the absence of beams limits the formation of ductile energy-dissipation mechanisms such as plastic hinges. As a result, adequate lateral load-resisting systems may not develop effectively. Therefore, the use of flat slab construction in seismic regions should be avoided or supplemented with suitable lateral force–resisting elements.
- If the advantages of energy dissipation are not considered in the design, then prestressing is permitted. However, it is very important **where**prestressing is applied. For example, in a **bridge deck**, the deck is generally not relied upon for energy dissipation during earthquakes, so prestressing is acceptable. In contrast, in buildings with **post-tensioned (PT) flat slabs** (slabs without beams), these slabs are part of the primary structural system and are expected to contribute to seismic energy dissipation; therefore, prestressing in such systems is generally not preferred from a seismic performance point of view.

He also introduced participants to **Performance-Based Seismic Design (PBSD) philosophy**, explaining how it focuses on achieving defined performance objectives under different earthquake levels rather than only strength-based design.

Further, he explained the concept of the **Static Pushover Method**, describing its role in evaluating nonlinear structural behavior, identifying weak zones, and assessing the expected performance of buildings under seismic loading.

The session was highly informative and provided participants with both conceptual clarity and practical understanding of modern seismic design approaches.

Post-Lunch Technical Session

The second post-lunch session was delivered by **Dr. Vijay Khose**, Vice President at **Thornton Tomasetti**.
During his session, he demonstrated the procedure for **estimating seismic forces using the revised IS 1893 provisions**. He presented a practical case study involving **two multistory buildings**, where he carried out a comparative analysis using the **revised code** and the **previous version of the code**.

Through this comparison, he clearly explained:

- Differences in seismic force estimation between the old and revised code provisions.
- The effect of updated parameters such as revised spectra, hazard levels, and load combinations on analysis results.
- The **impact of the new code on the design of multi-storey buildings**, including changes in base shear, member forces, and overall structural performance.

Dr. Vijay Khose responded to a query by advising that **floating columns should be avoided**, as they lead to discontinuity in the load path and result in poor seismic performance of buildings.

The session provided valuable practical insights into how the revised seismic code influences real-world structural design and analysis.

3. Organization and Coordination

The workshop was successfully coordinated by:

Er. Prashant Hadkar, Chairman, ISSE, Kolhapur Chapter	Dr. M.S.Salunkhe, School of Engineering and Technology, Shivaji University, Kolhapur	Prof. (Dr.) S.B. Kadam Head. Applied Mechanics Department Walchand college of Engineering, Sangli

Their dedicated efforts ensured smooth planning, coordination, and execution of the program.

4. Acknowledgements

Special thanks were extended to:

- Hon'ble Vice-Chancellor, Pro-Vice-Chancellor, and Registrar for granting permission and institutional support.
- Dr. Sonkawade, HoD Physics, for providing auditorium facilities and infrastructure support.
- Scon Infrastructure, Fischer and PM USHA scheme of Shivaji University, Kolhapur for sponsorship support.
- Faculty members, students from SET & WCE, practicing engineers, volunteers, office staff for their active contribution.

5. Participation and Outcome

The workshop witnessed enthusiastic participation from faculty members, practicing engineers, research scholars, and students. The sessions provided valuable exposure to updated seismic design provisions and practical applications, thereby strengthening professional competence in earthquake-resistant design in specific. The key aspect in earthquake resistant design are..

- **Earthquake-resistant design** is only about **20% strength-based and nearly 80% ductility-based**. Ductility is primarily achieved through proper **reinforcement detailing**, which makes the provisions of **IS 13920** vital in seismic design practice.
- **IS 1893:2025** serves as a general guideline. However, in real engineering practice, structural consultants often face situations not explicitly covered in the code. In such cases, engineers must apply their **technical judgment and professional expertise** to arrive at safe and rational solutions.
- The **response spectrum method (linear elastic approach)** provided in IS 1893:2025 may not be suitable for buildings with **high irregularity**, particularly those dominated by torsional effects. For such structures, more advanced methods such as **nonlinear time-history analysis** and **performance-based seismic design** are more appropriate.
- As many countries are moving toward a **performance-based design philosophy**, it is essential for practicing engineers and students to become familiar with its **concepts, methods, and practical applications**.

6. Conclusion

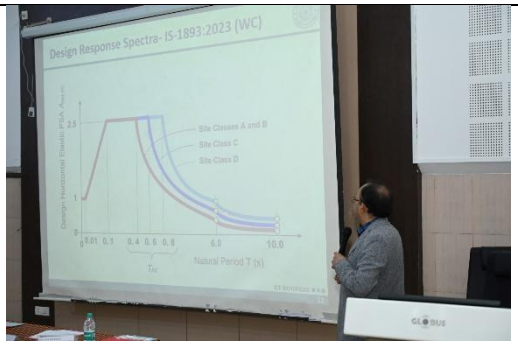
The workshop concluded successfully with a vote of thanks, leaving participants with enhanced knowledge, practical insights, and motivation to implement revised IS 1893 provisions in professional practice.

Photos

	
Registration desk	**Registration desk**

Dignitaries- Inauguration function (From left- Er. Hadkar P., Dr.Khose V., Dr.Yogendra Singh, Dr. Rathod S., Er. Burud T. and Dr. Kolekar A.)

Dr. Yogendra Singh



Dr. Yogendra Singh

Dr. Vijay Khose

Dr. Vijay Khose

	
Participants	Participants

	
Audience- Q/A	Audience- Q/A

	
Felicitation- of Dr.Sonkawde R.	Group Photo

	
Fischer - Sponsor	SCON infrastructure- Sponsor

	
Lunch- Participants	Lunch- Delegates

ONE- DAY WORKSHOP- SATURDAY 14TH FEBRUARY 2026
ON
"Understanding IS-1893(Part-1 and Part-5): 2025 for Seismic Design of Buildings"
Schedule

TOPIC	SPEAKER	TIME
Inauguration		**9.30-10.05 am**
Session-1		
Introduction of Prof. Yogendra Singh	Dr. Sachin Kadam	10:05 AM - 10:10 AM
Seismic Design of Buildings using Revised Codes	Prof. (Dr). Yogendra Singh	10:10 AM. -11:30 AM
	Break	**11:30 AM - 11:45 AM**

Introduction of Dr. Vijay Khose	Dr. M.S. Salunkhe	11:45 AM - 11:50 AM
Impact of IS 1893: 2025 on Design of Buildings	Dr. Vijay Khose	11:50 AM - 01:30 PM
	Lunch break	**1:30 PM - 2:30 PM**
Session -2		
Demo Lecture	"*SCON*" Infrastructure	2:30 PM - 2:45 PM
Demo Lecture	"*Fischer*"	2:45 PM - 3:00 PM
Seismic Design of Buildings using Revised Codes	Prof. (Dr). Yogendra Singh	3.00 PM – 4.00 PM
Impact of IS 1893: 2025 on Design of Buildings	Dr. Vijay Khose	4:00 PM -5:00 PM
	Break	5:00 PM -5:15 PM
Panel Discussion	Prof. Yogendra Singh, Dr. Khose V., Dr. Kadam S., Er. Hadkar P., Dr. Salunkhe M.	5:15 PM -5:45 PM
Vote of thanks	Dr.V.S.Patil	5:45 PM-5:50 PM
	High Tea	

Er. Prashant Hadkar, **Dr. M.S.Salunkhe,** **Prof. (Dr.) S.B. Kadam**