IABSE SYMPOSIUM Guwahati India 2027

Organised by
ING - IABSE
The Indian National Group of the IABSE

IABSE SYMPOSIUM GUWAHATI 2027

Pre-Symposium Workshops

Two full-day parallel masterclasses with leading international and Indian experts

21 April 2027
Wednesday

8:30 AM – 6:00 PM
Full-day, parallel workshops

Mayfair Spring Valley Resort
Guwahati, India

WORKSHOP 01

Conceptual Design Process in Structural Engineering

Prof. Mike Schlaich SBP, Germany
Dr.-Ing. Boris Reyher SBP, Germany
Er. V. N. Heggade DECon, India

WORKSHOP 02

Performance-Based Seismic Design (PBSD) for Buildings and Bridges

Prof. Yogendra Singh IIT Roorkee
Prof. Dipti Ranjan Sahoo IIT Delhi
Mr. Alok Bhowmick B&S Engineering Consultants
Prof. P. C. Ashwin Kumar IIT Roorkee
Mr. Tajul Islam IIT Roorkee / RealmRisk NG

Held in conjunction with the IABSE Symposium Guwahati 2027 • 22–24 April 2027
Structural Failures – Causes, Investigation, Resilience, Mitigation & Standardization



WELCOME

Learn from the Masters, a Day Before the Symposium

Ahead of the IABSE Symposium Guwahati 2027, the Indian National Group of IABSE (ING-IABSE) is organising two full-day pre-symposium workshops at the symposium venue. Led by internationally recognised practitioners and academics, the workshops offer an intensive, practice-oriented learning experience on two subjects that sit at the heart of safe, resilient and elegant structures – "the conceptual design process in structural engineering" and "PBSD for Buildings and Bridges".

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PARALLEL WORKSHOPS	EXPERT INSTRUCTORS FOR WORKSHOP 01	EXPERT INSTRUCTORS FOR WORKSHOP 02	SEATS PER WORKSHOP	FULL DAY OF LEARNING

WORKSHOP 01

Conceptual Design Process in Structural Engineering

How successful structures begin – long before detailed calculations. Explore force flow, structural form, material selection, constructability and sustainability through landmark buildings and bridges from around the world.

LED BY

- Prof. Mike Schlaich
- Dr.-Ing. Boris Reyher
- Er. V. N. Heggade

IDEAL FOR

Structural and bridge engineers, architects, urban designers, consultants, planners, researchers and students.

WORKSHOP 02

Performance-Based Seismic Design (PBSD) for Buildings and Bridges

Move beyond force-based design to explicit, verifiable performance under earthquakes – from seismic hazard and performance objectives to nonlinear analysis, resilience and international guidelines.

LED BY

- Prof. Yogendra Singh
- Prof. Dipti Ranjan Sahoo
- Mr. Alok Bhowmick
- Prof. P. C. Ashwin Kumar
- Mr. Tajul Islam

IDEAL FOR

Structural, bridge and earthquake engineers, consultants, infrastructure owners, code developers, researchers and students.

KEY DETAILS

Date Wednesday, 21 April 2027

Time 8:30 AM – 6:00 PM

Venue Mayfair Spring Valley Resort, Guwahati

Format Two workshops run in parallel – choose one

THE SYMPOSIUM

IABSE Symposium Guwahati 2027

22–24 April 2027 • Mayfair Spring Valley Resort

Theme: *Structural Failures – Causes, Investigation, Resilience, Mitigation & Standardization*

PRE-SYMPOSIUM WORKSHOP 01

Conceptual Design Process in Structural Engineering

21 April 2027 • 8:30 AM – 6:00 PM • Mayfair Spring Valley Resort, Guwahati

Led by Prof. Mike Schlaich, Dr.-Ing. Boris Reyher and Er. V. N. Heggade

BACKGROUND TO THE WORKSHOP

The success of a structure is often determined long before detailed calculations and drawings begin. The conceptual design stage is where the engineer establishes the fundamental structural form, load path, material selection, construction methodology, sustainability strategy, and overall project vision. Decisions made during this early phase have the greatest influence on structural efficiency, economy, constructability, aesthetics, durability, and environmental impact.

Throughout history, the most admired structures, from bridges and stadiums to towers and long-span roofs, have emerged from a rigorous conceptual design process that integrates engineering principles, creativity, innovation, and collaboration. Advances in digital tools and computational methods have expanded the possibilities available to engineers; however, the ability to develop elegant and efficient structural concepts remains a critical professional skill.

This workshop aims to explore the philosophy, methodology, and practical application of conceptual structural design. Drawing on examples from landmark projects around the world, it will illustrate how engineers can transform functional requirements into structurally efficient, sustainable, and aesthetically inspiring solutions, emphasising force flow, load paths, structural form, material behaviour, constructability, and sustainability.

EXPECTED LEARNING OUTCOMES

At the end of the workshop, participants will be able to:

01 Understand the importance of conceptual design in achieving successful structural solutions.

02 Identify efficient load paths and structural forms.

03 Generate and evaluate alternative structural concepts.

04 Integrate engineering, architecture, sustainability, and constructability considerations.

05 Apply conceptual design principles to buildings, bridges, and special structures.

06 Develop a more creative and holistic approach to structural engineering practice.

OBJECTIVES

- Introduce the principles and philosophy of conceptual structural design.
- Demonstrate how structural form emerges from function and force flow.
- Explain the relationship between efficiency, economy, aesthetics, and sustainability.
- Provide methodologies for generating and evaluating alternative structural concepts.
- Illustrate the role of conceptual design in buildings, bridges, roofs, towers, and special structures.
- Develop the ability to think creatively and critically during the early stages of design.

WHO SHOULD ATTEND

- Structural and bridge engineers
- Architects and urban designers
- Consulting engineers
- Infrastructure planners and project managers
- Researchers and academicians
- Graduate students in structural engineering and architecture
- Professionals interested in innovative and sustainable structural systems

THE WORKSHOP WILL ADDRESS

- Philosophy of conceptual structural design
- Understanding force flow and load paths
- Structural form and efficiency
- Creativity and innovation in engineering
- Material selection and structural optimization
- Integration of architecture and engineering
- Sustainability and resource-efficient design
- Constructability and lifecycle considerations
- Case studies of landmark buildings and bridges
- Lessons from successful international projects

PRE-SYMPOSIUM WORKSHOP 02

Performance-Based Seismic Design (PBSD) for Buildings and Bridges

21 April 2027 • 8:30 AM – 6:00 PM • Mayfair Spring Valley Resort, Guwahati

Led by Prof. Yogendra Singh, Prof. Dipti Ranjan Sahoo, Mr. Alok Bhowmick, Prof. P. C. Ashwin Kumar and Mr. Tajul Islam

BACKGROUND TO THE WORKSHOP

Conventional seismic design procedures primarily focus on life safety through force-based design approaches. However, recent earthquakes around the world have demonstrated that structures designed to code provisions may still suffer significant damage, resulting in prolonged downtime, economic losses, and disruption of critical services. Further, the current code-based approach provides no idea of the expected performance of the structure during the design or any other specific level of earthquake event.

Performance-Based Seismic Design (PBSD) has emerged as a rational and advanced design methodology that explicitly relates expected structural performance to specified levels of seismic hazard. It enables engineers to evaluate and design structures for multiple performance objectives – Immediate Occupancy, Operational Continuity, Life Safety, and Collapse Prevention – at different levels of hazard. For critical infrastructure such as lifeline buildings and bridges, PBSD provides a framework for resilience, sustainability, and risk-informed decision making.

This workshop provides a comprehensive understanding of PBSD principles, methodologies, analytical tools, and practical applications in both buildings and bridges, combining theoretical concepts, international best practices, and real-world case studies.

EXPECTED LEARNING OUTCOMES

At the end of the workshop, participants will be able to:

01 Understand the principles and objectives of PBSD.

02 Define suitable performance targets for buildings and bridges.

03 Select appropriate nonlinear analysis procedures.

04 Interpret performance assessment results.

05 Apply PBSD concepts to practical engineering projects.

06 Appreciate the role of PBSD in achieving resilient and sustainable infrastructure.

OBJECTIVES

- Introduce the philosophy and evolution of Performance-Based Seismic Design.
- Explain seismic performance objectives and performance levels for buildings and bridges.
- Familiarize participants with nonlinear analysis procedures used in PBSD.
- Demonstrate practical implementation through case studies and design examples.
- Discuss international guidelines, emerging standards, and future directions in seismic resilience.
- Provide insight into the challenges and opportunities of adopting PBSD in India and other seismic regions.

WHO SHOULD ATTEND

- Structural and bridge engineers
- Earthquake engineers
- Consulting engineers and designers
- Researchers and academicians
- Infrastructure owners and project managers
- Government agencies and code developers
- Graduate students interested in seismic engineering

PARTICIPANTS RECEIVE

- Electronic copies of lecture presentations
- Selected journal papers and technical reports
- Design examples and worked-out case studies
- Relevant FEMA/NIST documents

THE WORKSHOP WILL ADDRESS

- Evolution from force-based to performance-based seismic design
- Seismic hazard characterization and risk assessment
- Performance objectives and acceptance criteria
- Nonlinear static and nonlinear dynamic analysis
- PBSD of reinforced concrete, steel and composite buildings
- PBSD of highway and railway bridges
- Seismic resilience and functional recovery
- International codes, guidelines and emerging standards
- Case studies from recent earthquakes
- Future directions for resilient infrastructure

FACULTY

Meet the Instructors

WORKSHOP 01 • CONCEPTUAL DESIGN PROCESS IN STRUCTURAL ENGINEERING



Prof. Mike Schlaich

Partner, Schlaich Bergermann Partner (sbp), Germany
Professor Emeritus,
Technical University of Berlin



Dr.-Ing. Boris Reyher

Managing Director
Schlaich Bergermann Partner (sbp), Germany



Er. V. N. Heggade

Founder & CEO
DECon Complete Solutions, India

WORKSHOP 02 • PERFORMANCE-BASED SEISMIC DESIGN (PBSD) FOR BUILDINGS AND BRIDGES



Prof. Yogendra Singh

Professor, Department of Earthquake Engineering
Indian Institute of Technology Roorkee



Prof. Dipti Ranjan Sahoo

Professor, Department of Civil Engineering
Indian Institute of Technology Delhi



Mr. Alok Bhowmick

B&S Engineering Consultants Pvt. Ltd.
New Delhi



Prof. P. C. Ashwin Kumar

Assistant Professor, Department of Earthquake Engineering
Indian Institute of Technology Roorkee



Mr. Tajul Islam

Research Scholar, Department of Earthquake Engineering, IIT Roorkee
CEO, RealmRisk NG Pvt. Ltd.

40

SEATS PER WORKSHOP

Small groups allow close interaction with the instructors. Register early to secure your place.

WHY ATTEND?

International practice leaders

Learn directly from designers of landmark structures and from India's leading earthquake engineering researchers.

Case-study driven

Landmark buildings and bridges, recent earthquakes, design examples and worked-out applications.

Close interaction

Small groups of up to 40 participants per workshop for discussion and questions.

Right at the symposium

Held at the symposium venue the day before IABSE Symposium Guwahati 2027 opens.

REGISTRATION

Secure Your Seat

Participation fee per participant, per workshop. Each workshop is limited to 40 participants.

CATEGORY	BIMSTC PARTICIPANTS*	INTERNATIONAL PARTICIPANTS*
Standard Fee Per participant	₹ 10,000	€ 200
IABSE Members 10% discount	₹ 9,000	€ 180
Young Engineers & Students 25% discount	₹ 7,500	€ 150

Notes

- *Excludes GST @ 18%.
- Workshop registration deadline: 31 January 2027.
- BIMSTEC Countries: Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand.

HOW TO REGISTER

- Choose one workshop – both run in parallel on 21 April 2027.
- Register online through the symposium website: **www.iabse.org/Guwahati2027**

VENUE

Mayfair Spring Valley Resort
Guwahati, Assam, India

Wednesday, 21 April 2027
8:30 AM – 6:00 PM, followed by the Symposium, 22–24 April 2027

IABSE Secretariat

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