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CONTENTS

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Legacy of Trust

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President, Indian Buildings Congress

MESSAGE

It gives me immense pleasure to address our esteemed members, professionals, and stakeholders through this quarterly issue of Built Environment. As we navigate an era marked by rapid urbanization, technological transformation, and evolving environmental challenges, the role of the building and construction fraternity has never been more critical.

The built environment today stands at the intersection of sustainability, resilience, and innovation. With increasing pressure on urban infrastructure and natural resources, it is imperative that we adopt practices that are not only efficient but also environmentally responsible. The Indian Buildings Congress continues to advocate for sustainable design principles, green construction technologies, and lifecycle-oriented project planning that align with national and global priorities.

In recent months, we have witnessed significant advancements in smart infrastructure, digital construction methodologies, and energy-efficient building systems. These developments present both opportunities and responsibilities. As professionals, we must ensure that innovation is complemented with inclusivity, safety, and long-term durability.

IBC remains committed to fostering knowledge exchange, professional excellence, and collaborative engagement across disciplines. Our seminars, workshops, and publications aim to bridge the gap between theory and practice while encouraging young professionals to contribute meaningfully to the sector.

This issue of Built Environment brings together insightful articles, case studies, and expert perspectives that reflect current trends and future directions. I am confident that it will serve as a valuable resource for all our readers.

The 113th Governing Council Meeting along with National Seminar on ***"Sustainable future: Innovations in Green Building Practices"*** will be held on 2nd – 3rd May 2026 at Bhopal when the participants from all over the country will come & deliberate the issues involved. The 35 Chapters of IBC are working throughout the Country & conducting technical activity. The recommendation of such technical programme will immensely be beneficial in the field of development of the Country.

I take this opportunity to thank our contributors, editorial team, and members for their continued support and dedication. Together, let us strive to build not just structures, but a sustainable and resilient future for generations to come.

With warm regards,

C. Debnath
President
Indian Buildings Congress

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From Editor's Desk

Standards and Quality: The Bedrock of our Built Environment

Standards and Quality encompass all stages and stakeholders in the lifecycle of a building, and built environment. These two pillars are fundamentally related by predefinition and conformance. While standards lay the foundation by setting benchmarks, quality reflects the precise degree of their fulfilment. This excellence is visible from the Roman Colosseum's stacked arches or the Taj Mahal's symmetrical, self-stabilizing foundationsand Indian temples using interlocking joints to dissipate energy during earthquakes. Even post-independence marvels like the Nagarjuna Sagar Dam demonstrate how pioneers like Dr. K. L. Rao established masonry standards that saved critical foreign exchange and time.

Despite our "rich engineering heritage", the Indian construction industry is critically affected by the "cost of poor quality," which siphons away 15% to 40% of project value. These non-conformance costs include internal failures like material waste and rework, as well as external failures such as legal claims and a damaged reputation. To mitigate this, quality must be "predictive and achievable," integrated during the procurement of complex structures like steel portal frames, skywalks, or deep D-walls or PMAY 2.0 and Light House Projects. During construction, effective communication and Quality Management Systems (QMS) are the only ways to ensure a structure reaches its full intended design life in the mission for Viksit Bharat 2047.

Building Information Modelling (BIM) and AI-linked tools are transformative, no doubt, but human resources remain the critical element in utilizing standards effectively. The Indian Buildings Congress is a true champion for enforcement of standards i.e. the National Building Code of India, actively engaging stakeholders to ensure quality in every stage, including deconstruction. We fervently hope that young professionals join our Mission for its fruition.We earnestly prepare the next generation of professionals to join our mission, realizing that the integration of technology, standards, and quality is what ultimately delivers sustainability, performance, with happiness free in the basket.

(B.C. Tripathy)

Bridging Codified Standards and Lived Quality in the Built Environment: Reframing Compliance as Experiential Excellence

Dr. D.P. Singh

Director, Hindu Group of Institutions, Sonipat, Haryana.

1. Introduction

The built environment operates within a framework of codified standards governing safety, building, fire, environment, and quality. These frameworks ensure public safety, structural integrity, and minimum performance thresholds.

However, a growing tension exists between compliance and quality. Buildings may satisfy regulatory standards yet fail to deliver thermal comfort, spatial quality, social inclusivity, or environmental performance. This raises a fundamental question: **Does compliance ensure quality, or does quality demand more than compliance?**

The theme of Standards & Quality necessitates revisiting this relationship. This paper examines the interaction between codified standards and lived experience, and proposes an approach to align compliance with performance and quality outcomes.

2. Conceptual Understanding of Standards and Quality

2.1 What are Standards?

Standards in the built environment comprise prescriptive codes, performance-based norms, environmental benchmarks, and quality assurance protocols. They establish minimum requirements for safety, structural stability, legal accountability, and basic functionality.

2.2 What is Quality?

Quality is multidimensional, encompassing functional adequacy, environmental performance, user comfort, contextual integration, durability, and aesthetic coherence. Unlike standards, it cannot be defined solely through numeric thresholds. It emerges from the interaction of design intent, execution, operation, and user experience.

Standards define minimum adequacy; quality reflects performance, experience, and outcomes in use.

3. The Compliance–Quality Gap

Despite robust regulatory frameworks, a persistent gap exists between compliance and actual performance in the built environment.

3.1 Safety vs Comfort

Buildings may meet ventilation or lighting standards yet fail to provide thermal comfort or usability due to poor layout, orientation, or design integration.

3.2 Structural Integrity vs Sustainability

Structures may satisfy strength and safety requirements but rely on carbon-intensive materials or inefficient systems, compromising environmental performance.

3.3 Accessibility Compliance vs. Inclusive Design

Compliance ensures minimum access through prescribed dimensions and features. However, inclusive design focuses on usability, dignity, and ease of navigation. Elements that meet standards may still fail users if poorly located, difficult to use, or socially isolating.

3.4 Certification vs Performance

Green building certification systems—such as LEED, GRIHA, BREEAM, or IGBC—are designed to encourage sustainable design practices by awarding points for energy efficiency, water conservation, material selection, and environmental planning. Achieving certification indicates that a building has met predefined criteria at the design and construction stages. However, certification reflects intent and documentation, while actual performance depends on execution and operation.

4. Evolution of Standards: From Prescriptive to Performance-Based Outcomes

Traditionally, standards in the built environment were prescriptive, specifying materials, dimensions, and methods of construction. While this ensured uniformity and control, it often limited flexibility and innovation.

Contemporary practice is increasingly shifting toward performance-based standards, which define desired outcomes—such as structural safety, fire resistance, or energy performance—while allowing flexibility in how these outcomes are achieved.

This transition enables innovation and encourages context-specific solutions. However, without effective monitoring mechanisms—such as post-occupancy evaluation and performance tracking—performance-based standards risk remaining theoretical rather than delivering measurable outcomes.

5. Case-Based Observations from Practice

5.1 Institutional Buildings

In academic campuses, standards ensure classroom size, fire safety, and lighting norms. Yet quality depends on:

- Acoustic performance
- Thermal comfort
- Informal interaction spaces
- Natural daylight optimization

Institutions designed only for compliance often lack experiential richness.

5.2 Residential Developments

Residential developments typically comply with structural, fire safety, and regulatory requirements. However, compliance does not necessarily ensure livability. Projects may meet codal provisions yet fall short in aspects such as ventilation, usable open spaces, and community integration.

Quality residential design goes beyond compliance to address climate-responsive planning, daylight and thermal comfort, and user-centric layouts that support social interaction and accessibility. Long-term resident satisfaction depends on these experiential and environmental factors rather than regulatory adequacy alone.

5.3 Infrastructure Projects

In large infrastructure projects, quality lapses often arise not from absence of standards but from:

- Weak monitoring
- Poor workmanship
- Inadequate quality audits
- Limited lifecycle planning

Thus, standards must be reinforced by governance mechanisms.

6. The Role of Quality Management

Quality in the built environment is governed by a structured ecosystem of standards and management systems. These include:

- **Regulatory and codal standards** (building, structural, fire, and safety norms) that establish minimum requirements for safety and performance;
- **Material and construction standards** that define specifications, workmanship, and durability;
- **Environmental and sustainability standards** that address energy efficiency and resource performance and
- **Quality management systems** (such as ISO 9001 and project-based frameworks like PMBOK) that define processes for planning, assurance, and control.

Together, these define what constitutes acceptable quality, while management systems provide the mechanisms to achieve it.

Quality Management integrates three key functions:

- **Quality Planning** identifies applicable standards, defines performance objectives, and establishes procedures across design and execution.
- **Quality Assurance** ensures that planned processes are systematically followed through audits and process controls.
- **Quality Control** verifies outputs through inspection and testing against specified criteria.

While this framework provides a structured approach, its effectiveness depends on implementation across the project lifecycle. In practice, quality management often becomes compliance-driven, with emphasis on documentation and verification rather than actual performance and user outcomes.

Therefore, *standards define what quality should be; quality management defines how it is delivered; actual quality depends on how effectively both are implemented in practice.*

7. Integrating Sustainability into Standards

Contemporary standards increasingly incorporate sustainability considerations, extending quality beyond structural adequacy to environmental

performance. These include energy efficiency codes, water conservation norms, green building frameworks, and emerging approaches such as embodied carbon assessment.

Such standards encourage resource efficiency and responsible design. However, their impact often remains limited when treated as compliance targets rather than performance objectives. Certification-driven approaches may prioritize achieving ratings over ensuring long-term operational efficiency.

True sustainability requires integration across the building lifecycle—design, construction, operation, and maintenance—supported by continuous monitoring, performance evaluation, and adaptive management. *Sustainability standards expand the definition of quality, but their effectiveness depends on lifecycle performance rather than one-time compliance.*

8. Post-Occupancy Evaluation (POE) as a Quality Tool

Post-Occupancy Evaluation (POE) is a critical mechanism for assessing actual building performance in use. POE typically examines aspects such as user satisfaction, thermal comfort, energy performance, maintenance efficiency, and space utilization. It provides feedback on whether design intent has translated into real-world outcomes. Without POE, standards and certifications remain predictive rather than validated. Buildings may meet all prescribed requirements yet fail to deliver expected performance in operation. Integrating POE into practice enables continuous learning, performance improvement, and informed decision-making for future projects.

POE transforms standards from static prescriptions into dynamic feedback systems, linking compliance with actual performance.

9. The Compliance-to-Quality Framework

To bridge the gap between standards and lived quality, a structured approach is required that positions compliance as a foundation rather than the end goal. The proposed framework integrates multiple layers of performance across the project lifecycle:

- **Layer 1: Regulatory Compliance**

  Ensuring all statutory and codal requirements are met as the baseline for safety and functionality.

- **Layer 2: Performance Optimization**

  Enhancing energy efficiency, durability, and resource performance beyond minimum standards.

- **Layer 3: Contextual Responsiveness**

  Adapting design to climate, culture, and local conditions to improve usability and relevance.

- **Layer 4: User-Centric Evaluation**

  Incorporating user feedback and experience during design and post-occupancy stages.

- **Layer 5: Lifecycle Governance**

  Ensuring continuous monitoring, maintenance planning, and performance review throughout the building lifecycle.

This layered framework reframes compliance as the starting point of quality, integrating design intent, execution, and operational performance into a unified system. Compliance establishes the baseline; quality emerges through integration, performance, and continuous feedback.

10. Implications for Practice and Way Forward

Standards remain fundamental to the built environment, ensuring safety, accountability, and minimum performance. However, they represent the baseline rather than the full expression of quality. Achieving meaningful outcomes requires a shift from compliance-driven practice to performance- and experience-oriented approaches.

This transition calls for a more integrated and multidisciplinary approach involving architecture, engineering, sustainability, and digital systems. Regulatory frameworks must evolve to incorporate performance-based metrics, lifecycle monitoring, and post-occupancy evaluation. At the same time, professional practice must emphasize interpretation of standards, execution discipline, and user-centric design.

Quality in the built environment is dynamic, shaped by technological advancement, environmental challenges, and evolving user expectations. It cannot be achieved through standards alone, but through their effective integration with design intent, construction practices, and operational performance.

Standards ensure compliance and safety; quality ensures performance, experience, and long-term relevance. Bridging the two requires moving from static compliance to dynamic, lifecycle-based practice.

Standards, Safety & Quality in Precast Construction

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Abstract

Precast technology has significantly accelerated India's urban and infrastructure growth by delivering factory-controlled quality, shorter construction timelines, and safer, cleaner work environments. However, ensuring quality and safety throughout the lifecycle of precast systems—from conceptual design to erection and long-term maintenance—requires rigorous engineering, reliable connections, disciplined site practices, and proactive asset management aligned with codal provisions.

This paper examines the key quality challenges encountered in precast structural design, construction, and maintenance, correlates them with Indian Standards (IS) compliance, and consolidates proven best practices. It references IS 15916 for prefabricated concrete buildings, along with core concrete and loading codes (IS 456, IS 875 series, IS 1893), material standards (IS 383, IS 4926, IS 9103, IS 1786), and construction safety codes (IS 3696, IS 3764), highlighting current updates and draft revisions where applicable.

1. Introduction

Precast concrete construction involves assembling structural components manufactured in controlled environments and connected on-site using mechanical and wet (emulative) joints. Its adoption in India has surged across housing projects, industrial facilities, metro systems, and logistics hubs—driven by the need for speed, uniform quality, reduced site congestion, and enhanced safety. However, precast systems introduce distinct challenges, including maintaining load path continuity at joints, ensuring temporary stability during erection, and preserving long-term durability of connections. These factors demand strict adherence to codes and disciplined execution. The first revision of IS 15916:2020 provides comprehensive guidance on modular coordination, component sizing, joint detailing, manufacturing, storage, transportation, and erection, with a strong emphasis on preventing progressive collapse—a critical safety consideration for precast structures.

Objectives:

1. Identify critical quality challenges across the precast lifecycle.
2. Interpret applicable Indian Standards and recent updates.
3. Document best practices that have proved effective on Indian projects.
4. Propose actionable recommendations for organizations, designers, and site teams.

2. Standards vs Quality in Precast Construction

Precast construction is often associated with high quality due to factory-controlled production, precision, and repeatability. However, a critical distinction must be made between standards and quality. Standards define the minimum acceptable requirements for materials, design, and construction processes, ensuring safety and baseline performance. Quality, on the other hand, reflects how effectively these requirements are integrated, executed, and sustained across the lifecycle of a project.

In precast systems, while components may comply with codal provisions such as IS 15916, IS 456, and IS 1893, overall performance depends on factors that extend beyond compliance—such as connection detailing, tolerance management, erection sequencing, and coordination between structural and MEP systems. The interface between elements, particularly at joints, becomes the true determinant of behaviour under service and extreme conditions.

A critical gap therefore emerges. In practice, failures rarely arise from absence of standards; they arise from discontinuities between design intent, execution practices, and operational use. Bridging this gap requires moving beyond a compliance-driven approach towards a culture of integrated design, disciplined execution, and lifecycle accountability.

Standards ensure adequacy of individual components; quality ensures reliability of the assembled system

3. Challenges in Precast Structural Design

A. Modular and Standardized Design

Precast structural elements are engineered based on modular coordination principles to achieve precise dimensional interoperability and facilitate streamlined assembly. The adoption of standardized module sizes and repetitive configurations optimizes production workflows, enhances constructability, and mitigates fabrication deviations through uniform geometric tolerances. A typical modular layout is shown in Fig. 1.

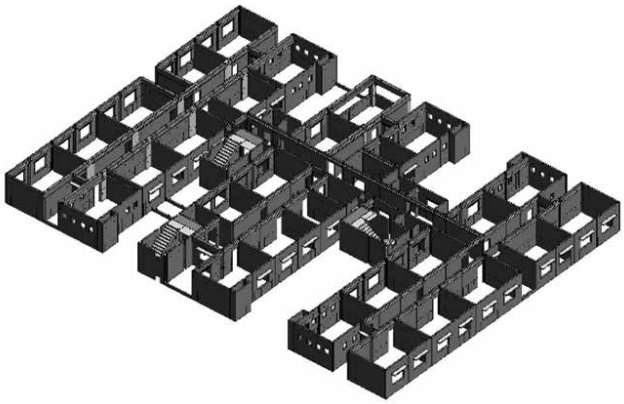

Fig. 1. Typical modular layout for precast wall panel planning

B. Structural Continuity, Load Transfer, Progressive Collapse and Disproportionate Failure

Core risk lies in maintaining continuous load paths across joints under gravity, wind, and seismic actions, avoiding discontinuities that affect global behaviour and ductility. IS 15916 (Cl. 9) outlines jointing techniques—welded steel, grouted reinforcement, RC ties, prestressing, and mechanical couplers—emphasizing that connections must be designed as rigorously as members.

Codal anchors: IS 456 (materials, durability, detailing), IS 875 (loads and combinations including erection stages), IS 1893 (seismic design with updated provisions influencing connections and collapse resistance).

The system was analyzed using ETABS with seismic provisions as per IS 1893:2016.

IS 15916 emphasizes preventing progressive collapse through emulative detailing using wet joints or reliable mechanical connections. Designers must ensure alternate load paths and adequate tying forces, aligned with international practice.

C. Precast components & Assembly

Precast wall panels offer superior finishes, eliminating plastering, while also functioning as structural shear walls with in-plane capacity to resist wind and seismic loads. They enhance diaphragm action and overall lateral stability, reducing the need for additional bracing. Precast columns are cast with integrated corbels to support beam connections, and beams may be fixed or simply supported based on structural requirements. Precast slabs serve as floor and roof elements, typically designed as one-way or two-way simply supported systems. Staircases can be cast as monolithic units or as modular components (flights and landings) for ease of assembly. Typical precast components and their assembly configuration are illustrated in Fig. 2.

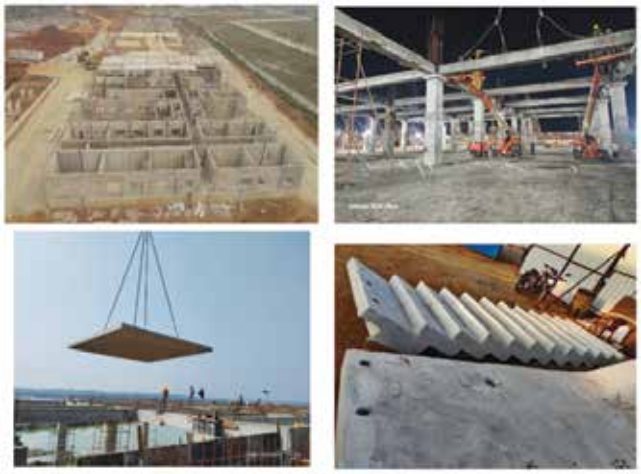

Fig. 2. Typical precast structural components and assembly system

D. Durability & Connections

Durability issues—chloride ingress, carbonation, and thermal effects—are critical at joints and anchorage zones. IS 456 specifies exposure-based cover, mix quality, curing, and construction joint practices essential for precast interfaces, while IS 383 ensures aggregate quality and control of deleterious materials and AAR.

Connections govern structural integrity and safety in precast systems. Proper selection and detailing—such as dowel, wire loop, stitch, and beam-column connections—ensure accurate assembly and effective load transfer. Representative connection details are shown in Fig. 3.

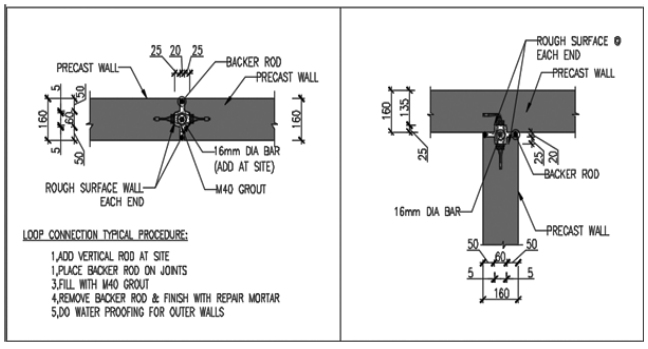

Fig 3. Representative precast connection detail

Structural ties are essential:

- **Vertical ties** maintain continuity from foundation to roof.
- **Horizontal ties** connect elements and enable diaphragm action.
- **Internal ties** form slab-level reinforcement for uniform force distribution.
- **Peripheral ties** resist tensile forces under lateral loads, as illustrated in Fig. 4

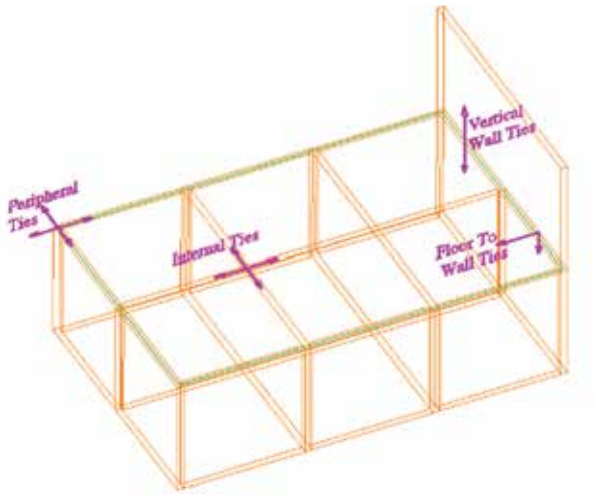

Fig. 4. Structural tie arrangement for continuity and diaphragm action

Reinforcement (IS 1786) ensures ductility and performance under cyclic loading; RMC (IS 4926) governs process quality for site-cast joints; admixtures (IS 9103) enable workability and controlled placement without compromising mix integrity.

4. Precast Construction Methodology

A. Planning and Logistics

Precast construction requires meticulous planning and logistics management to ensure efficiency, cost-effectiveness, and timely project delivery. Key considerations include: Design coordination, production scheduling, transportation, site logistics.

B. Element fabrication

Elements are cast in a site-based yard using detailed shop drawings. Reinforcement cages are pre-assembled and placed in molds, followed by controlled casting of high-strength concrete. After ~24 hours, elements are demoulded and cured (steam or water). Wall and slab elements are cast on flat beds, while complex elements use tilting table moulds.

C. Handling and Transportation

During demoulding, elements are lifted using a minimum 4-point system for stability, followed by quality checks and storage. Transportation to site is carried out with proper support and bracing to prevent damage.

D. Erection and assembly

Elements are erected using suitable lifting systems with predefined coordinates. Wall panels are positioned and temporarily supported with props, followed by alignment checks and joint grouting. Horizontal elements such as beams and solid slabs are installed only after 24-hours curing period of wall grouting, positioned on top of the completed wall assemblies.

E. Placing Structural Screed& Finishing

After erection, slabs are prepared for screeding with interconnected ties to ensure diaphragm action. MEP provisions are integrated before casting the final layer. Subsequent floor erection proceeds after initial curing, with finishing works continuing below

5. When Compliance Masks Risk

A recurring paradox in construction is that strict compliance with standards can obscure emerging risks. As focus shifts to approvals, documentation, and test results, critical field-level issues may go unnoticed.

In precast systems, elements may satisfy strength and durability requirements, yet connection behaviour under real conditions—especially during erection or seismic actions—may remain inadequately validated. Temporary stability, often outside detailed codal coverage, becomes a key vulnerability. Similarly, technically correct drawings can still lead to errors if version control and site coordination are weak.

Compliance can therefore create a false sense of assurance unless supported by continuous verification and system-level thinking. Early warning signs—misalignments, tolerance issues, erection instabilities—should be treated as indicators of deeper gaps.

True quality lies in recognizing that compliance is necessary but not sufficient; it requires a shift from checking standards to ensuring performance in reality.

6. Systemic Challenges & Mitigation

A. Before Construction

- High initial investment in casting yards, moulds, cranes, and storage space
- Handling and transportation risks due to bulky components

- Requirement of skilled workforce for fabrication, erection, and coordination

B. During/After Construction

- Stability risks during handling and erection of heavy elements
- Limited flexibility for changes in embedded MEP services post-installation
- Critical dependence on proper joint detailing for emulative behaviour

C. Mitigation

These challenges can be addressed through modular design aligned with precast systems, integration of BIM for coordination and version control, and pre-engineered planning of embedded services. Connection systems—wet or dry—must be selected and detailed based on structural requirements to ensure continuity and performance.

7. Current Application & Future Scope

Precast construction has expanded across residential, industrial, and infrastructure sectors, including metro systems and rapid-build facilities such as COVID hospitals. Its advantages in speed, quality, and site efficiency position it as a key solution for large-scale urban development. With increasing demand for faster and more sustainable construction, precast is expected to play a dominant role in the coming decade.

8. Challenges in Accepting New Technology

Adoption barriers include limited awareness, high initial costs, site constraints, shortage of skilled manpower, and resistance to change. These can be mitigated through capacity building, demonstration of lifecycle cost benefits, integrated delivery approaches, and supportive policy and regulatory frameworks. These challenges can be further addressed through digital and AI-enabled tools such as predictive analysis, optimized logistics, and real-time quality monitoring.

9. Conclusion

Precast construction represents a significant advancement in the built environment, offering speed, precision, and improved working conditions. Indian Standards such as IS 15916, IS 456, IS 875, and IS 1893 provide a robust framework for design and execution, establishing essential safety and performance benchmarks. However, as this paper highlights, compliance with standards alone does not guarantee quality.

The performance of precast systems is ultimately governed by the continuity between design intent, execution practices, and operational performance. Critical aspects such as connection behaviour, erection stability, coordination of embedded services, and long-term durability extend beyond the direct scope of codal provisions and require disciplined processes, skilled execution, and integrated systems.

A shift is therefore required—from viewing standards as endpoints to recognizing them as reference frameworks within a larger quality ecosystem. Digital tools such as BIM and CDE, along with structured quality assurance practices and lifecycle-based thinking, can enable this transition by ensuring continuity of information and accountability across stakeholders.

In essence, standards provide the foundation, but quality delivers the outcome. For precast construction to realize its full potential in India's rapidly evolving built environment, the focus must move from compliance to culture—where safety, performance, and reliability are achieved through alignment, integration, and shared responsibility across the entire lifecycle.

Invitation for Theme Suggestion of

29th Annual Convention and National Seminar

Indian Buildings Congress is organizing its 29th Annual Convention and National Seminar scheduled to be held in Jan 2027 at Chennai.

A suitable theme suggestion is requested for the Annual Convention and National Seminar by 30/4/26 through email indianbldgscongress@gmail.com from EC/ GC members and Past Presidents.

Quality – The Lived System

Quality in the built environment is not defined only by specifications or approvals, but by **how a building actually performs in use**. It reflects the consistency of decisions, clarity of execution, and continuity of intent across planning, construction, and operation. While standards define minimum requirements, quality determines how well those requirements are realised in practice.

During the pre-construction stage, quality is shaped by understanding of requirements, coordination between disciplines, and clarity of design intent. During construction, it depends on execution discipline, sequencing, workmanship, and supervision. In the operation and maintenance stage, quality is sustained through proper use, timely maintenance, and control over changes. **Unlike standards, quality evolves continuously across the life cycle.**

Quality in building projects can be understood through the following key aspects:

1. **Understanding and Interpretation** - Quality begins with how requirements are understood. Clarity of intent, correct interpretation of drawings, and alignment among stakeholders determine whether execution proceeds as envisioned.
2. **Decisions and Trade-offs –** Quality is shaped by decisions made under constraints of time, cost, and resources. Choices regarding materials, sequencing, and methods influence outcomes, often without immediate visibility.
3. **Process Discipline and Workmanship –** Consistent execution, proper sequencing, supervision, and attention to detail translate intent into reality. Small deviations, if unchecked, accumulate into visible deficiencies.
4. **Feedback and Responsiveness –** Early signs such as minor defects, misalignments, or distress require timely recognition and correction. Quality improves when systems respond, and degrades when signals are ignored.
5. **Continuity Across the Life Cycle –** Quality depends on how intent is carried forward from design to construction to operation. Breaks in coordination, ownership, or maintenance gradually affect performance over time.

During construction, quality is not ensured by isolated checks but **by consistency in daily execution**. During operation, quality is not preserved by compliance alone but **by responsible use and maintenance**.

Quality is not achieved at checkpoints; it is built through continuous decisions, actions, and care across the life cycle.

(Conceptual synthesis and framework articulation: Manoranjan Misra, Fmr. E-in-C & Spl. Secy. Govt. of Odisha)

Standards – The Formal System

Standards form the **formal backbone** of the built environment. They **establish minimum requirements, provide a common language, and enable consistency** across planning, design, construction, and regulation. Through codes, specifications, and contractual provisions, standards define **what is acceptable, forming the basis for approval, verification, and accountability**.

During the **pre-construction stage, standards influence planning decisions, design criteria, and material specifications.** During construction, they guide testing, inspection, and acceptance. In the **operation and maintenance stage, standards define inspection regimes** and compliance requirements. While standards apply across the life cycle, they operate primarily at defined checkpoints rather than continuously. In practice, standards in building projects can be understood through the following key aspects:

1. **Codification and Reference** – Standards originate as codes, manuals, specifications, and by-laws, translating collective experience into structured requirements.
2. **Translation into Project Documents** – Standards take practical form through drawings, BOQs, and contracts, shaping how requirements are communicated for execution.
3. **Compliance and Approval** – Standards are applied during design checks and statutory approvals, establishing conformance with prescribed criteria.
4. **Testing, Inspection, and Measurement** – Standards are operationalised through tests, inspections, and measurable parameters that determine acceptance.
5. **Documentation, Certification, and Closure** – Standards culminate in reports, checklists, and certificates that provide formal evidence of compliance.

During construction, standards guide acceptance but do not control day-to-day decisions. During operation, standards define requirements, but actual performance depends on how systems are used and maintained.

A building meets standards when requirements are verified at checkpoints; its performance depends on how they are applied between them.

Standards & Quality – The Relationship

Standards and quality are often treated as equivalent, yet they represent **two distinct but interconnected dimensions** of the built environment. **Standards define minimum acceptable requirements, while quality reflects how well those requirements are realised in practice**. A building may comply with standards, yet its performance depends on the consistency of decisions, execution, and use over time.

During the pre-construction stage, standards guide design criteria and specifications, while **quality depends on how clearly intent is understood and coordinated.** During construction, standards define tests and acceptance limits, while quality emerges from execution discipline, sequencing, and supervision. In the operation and maintenance stage, **standards prescribe inspection regimes, while quality is sustained through responsible use, maintenance**, and continuity of care. The relationship between standards and quality can be understood through the following:

1. **Reference and Realisation** – Standards provide reference points in the form of codes, specifications, and defined limits. Quality reflects how effectively these references are interpreted and translated into actual outcomes through design, execution, and use.
2. **Compliance and Performance** – Standards establish compliance through defined criteria, approvals, and verification. Quality determines how the building performs over time—through durability, functionality.
3. **Checkpoints and Continuity** – Standards operate at defined checkpoints; quality develops continuously between them.
4. **Documentation and Experience** – Standards are expressed through documents and records; quality is experienced through actual behaviour and use.
5. **Minimum and Beyond** – Standards define minimum acceptable levels to ensure safety and uniformity. Quality determines how far the outcome goes beyond these minimums, shaping the overall performance and value of the built environment.

A building that ignores standards risks failure; a building that relies only on standards may fall short of its full potential. Meaningful outcomes emerge when both are aligned, with **standards providing structure and quality guiding execution and performance.**

Standards define the limits; quality defines the outcome; together they shape how a building performs across its life cycle.

IBC NEWS

I. IBC HQ

(i) 112th Governing Council Meeting at Kerala and National Seminar on Designing for Safety: Guidelines for Building Construction

Indian Buildings Congress Kerala State Chapter in association with PWD Government of Kerala organized 112th Governing Council Meeting along with a National Seminar on **"Designing for Safety: Guidelines for Building Construction"** on 30th January – 1st February, 2026 at Gokulam Convention Centre, Kochi. The event brought together Senior Engineers, Policymakers, Academicians, Industry experts and Professionals from across the country to deliberate on safety, codes, regulations, materials, fire safety and professional practice in the construction sector. The objectives of the porgramme were to highlight the importance of safety centric design in building construction, disseminate the latest provisions of national building codes and standards, discuss challenges in implementation of safety guidelines in India, to promote professional engineering practices and regulatory reforms and to provide a platform for knowledge exchange among stakeholders.

Programme Highlights

Day 1: Friday, 30th January 2026

Pre-session Technical lecture on "EPC Contracts" was delivered by Er. Rajeev Kumar, Honorary Treasurer IBC & CE, CPWD, New Delhi.

Er. Rajeev Kumar, Hony. Treasurer IBC & CE, CPWD delivering the lecture

A keynote Lecture was delivered by Er. V. Suresh, Chairman, National Building Code of India and Former CMD, HUDCO, who emphasized the urgent need for comprehensive safety guidelines in Indian construction practices.

Er. V. Suresh, Chairman, National Building Code of India, Former CMD, HUDCO and Past President, IBC delivering the keynote Lecture

The formal Inaugural Session of the National Seminar commenced at 6:00 PM with a solemn prayer, setting an auspicious tone for the proceedings.

The session began with a Welcome Address by Er. M. Pennamma, General Convener of the IBC National Seminar, who warmly greeted the dignitaries, delegates, and participants. This was followed by an overview of the seminar by Er. Jose Kurian, Convener of the Scientific Committee, outlining the objectives and relevance of the programme in the context of contemporary construction challenges.

Dr. Anil Joseph, Chairman of the Indian Buildings Congress Kerala State Chapter, delivered the Chairman's address, emphasizing the critical need for safety-oriented planning, strict adherence to codes, and professional responsibility in building construction.

Er. C. Debnath, President of IBC in his address highlighted the role of IBC in promoting safe and sustainable construction practices across the country.

Er. O. P. Goel, Founder President of IBC delivered a brief but inspiring address reflecting on the evolution of the organization and the importance of professional integrity in the construction sector.

Lighting of the Ceremonial Lamp

Hon'ble Justice Devan Ramachandran, Judge of the Kerala High Court was the Chief Guest. The ceremonial lighting of the lamp was then performed by the dignitaries, symbolizing the inauguration of the seminar.

In his keynote address, Justice Devan Ramachandran underscored the legal, ethical, and societal dimensions of building safety, stressing accountability, compliance with regulations, and the protection of public welfare.

The Guest of Honour Smt. G. Priyanka, IAS, District Collector, Ernakulam highlighted the importance of resilient infrastructure and disaster preparedness at the district level.

A significant highlight of the session was the release of the Seminar Souvenir by Er. V. Suresh, Chairman of the National Building Code of India, marking the formal documentation of the event's themes and contributions.

Release of the Souvenir

A recorded special message was delivered by Shri. S. Suhas, IAS, Managing Director of Cochin International Airport Limited (CIAL, the Title Sponsor for the national Seminar), who shared insights on safe infrastructure development in large-scale public projects.

The session concluded with a Vote of Thanks by Col. (Dr.) Anand Mathialagan (Retd.), Honorary Secretary of the Indian Buildings Congress, expressing gratitude to all dignitaries, speakers, organizers, sponsors, and participants for their contributions to the success of the program.

The Inaugural Session ended with the rendition of the National Anthem. Thereafter, the cultural program commenced, showcasing a vibrant Kerala traditional fusion presentation featuring classical and martial art forms such as Kathakali, Mohiniyattam, Kalarippayattu, among others, followed by a soulful Ghazal performance. The evening concluded with a welcome dinner hosted at the venue, providing an opportunity for informal interaction and networking among the delegates and dignitaries.

Cultural Programme

Day 2: Saturday, 31st January 2026

The second day commenced with registration at 8:00 AM, followed by a series of technical sessions and panel discussions addressing diverse aspects of building safety. Session 2, delivered by Er. V. V. Arora, Convener of the Panel for Masonry of NBC 2025, and focused on building materials, masonry practices, and the updated provisions of the National Building Code.

Er. V. V. Arora, Convener of the Panel for Masonry of NBC 2025

Panel Discussion I

Panel Discussion I examined the topic "Need of Professionalism in Engineering, Formation of IPEC," highlighting the importance of professional regulation, ethical practice, competency standards, and a proposed framework for strengthening engineering professionalism in India. Er. Reji Zachariah, MD XBuild Software and Aadspro, Mr. Vivek, Timber pile, Mr. Biju – Usphere Ltd and Dr. Elson John, HOD, MA College were the panelists and the session was moderated by Dr. Anil Joseph. The discussions underscored the necessity for strict adherence to building codes, disaster resilience measures, fire safety provisions, and legislative support for professional engineering practice. In addition, corporate presentations were

delivered by industry representatives from sponsoring organizations up to the silver category, showcasing innovative technologies, advanced materials, and contemporary construction solutions relevant to modern infrastructure development.

Panel Discussion in progress

Session 3 was delivered online by Er. Arunkumar Saravanan, Director (Civil Engineering) and Head of the NBC Unit at BIS, focused on building confidence through strict adherence to national codes and standards, highlighting the crucial role of BIS in regulating construction practices.

Er. Arunkumar Saravanan

Session 4, featured Er. R. C. Sharma, a Fire Safety and Disaster Management Expert, who spoke on essential fire safety measures, disaster preparedness, and regulatory compliance required to safeguard life and property.

Er. R. C. Sharma

Session 5 presented online by Prof. C. V. R. Murty of IIT Madras, underscored the importance of structural safety, particularly seismic safety and emphasized the need for resilient design in earthquake-prone regions.

Prof. C. V. R. Murty, IIT Madras

Panel Discussion II

Panel Discussion II focused on the theme "Need of Professionalism in Engineering, Formation of IPEC" during which eminent experts and industry professionals engaged in a comprehensive discussion on the rapidly evolving construction landscape. Er. M Nagaraj, Er. Rajesh Bisaria, Er. Anirban Dutta, Er. IS.N. Raju and Ar. C.P. Balamurugan were the panelists for the session and it was moderated by Er. Jose Kurian, Convener, Scientific committee. The deliberations addressed emerging trends, recent regulatory changes, sustainability imperatives, and the adoption of advanced technologies shaping modern construction practices, with particular emphasis on enhancing safety, efficiency, environmental responsibility, and resilience in infrastructure development.

Panel Discussion in progress

The Valedictory Session began with a Welcome Address by Dr. Yacub Mohan George, Honorary Secretary, IBC Kerala State Chapter. Er. Jose Kurian, Convener of the Scientific Committee, presented a comprehensive summary of the seminar proceedings, highlighting

key themes, technical insights, and recommendations that emerged during the sessions. comments were offered by senior office bearers of the Indian Buildings Congress: Er. C. Debnath, National President, Er. O. P. Goel, Founder President, Col. Dr. Anand Mathialagan, Honorary Secretary, IBC, Er. M. Pennamma, General Convener of the National Seminar. They appreciated the high quality of deliberations and the active participation of delegates, noting the importance of continuing such initiatives to enhance safety awareness in the construction industry. Feedback from participants reflected the seminar's relevance, usefulness, and professional value. The session concluded with a Vote of Thanks delivered by Er. Anil Joseph, Chairman, IBC Kerala State Chapter, who expressed gratitude to the dignitaries, speakers, organizing committees, sponsors, and participants for contributing to the success of the event. The program ended with the rendition of the National Anthem.

IBC Kerala State Chapter Members receiving Appreciation Memento from IBC President and Team

In the evening, participants were treated to a memorable boating program aboard the elegant Nefertiti Cruise through the scenic backwaters of Kochi Backwaters. The cruise offered breathtaking views of the tranquil waterways, lush shoreline, traditional fishing nets, and the illuminated skyline of Kochi, creating a serene and festive atmosphere. The Boat Cruise was followed by a networking dinner on board, featuring a variety of cuisine and providing an excellent opportunity for participants to connect beyond formal sessions. The evening culminated in a lively dance party, where attendees enthusiastically participated, fostering camaraderie and strengthening professional relationships. The event served as a perfect blend of relaxation, cultural experience, and professional networking, and was widely appreciated as one of the highlights of the programme.

Day 3: Sunday, 1st February 2026

On 1st February 2026, the 112th Governing Council Meeting of the Indian Buildings Congress was convened, preceded by a technical presentation on Lean Construction by Er. M. R. Mishra, Former Engineer-in-Chief, R&B, Odisha. The Council deliberated on organizational matters, policy directions, and future activities of IBC, concluding successfully in the afternoon.

112th Governing Council Meeting in Progress

Spouse Programme

A thoughtfully curated spouse program was organized alongside the seminar for the spouses of the Governing Council members, ensuring their meaningful engagement during the technical sessions. The program provided an opportunity to experience the cultural, historical, and recreational highlights of Kochi in a relaxed and enjoyable manner.

Spouse Programme

On Day 1, the group visited the historic precincts of Fort Kochi, renowned for its colonial architecture, vibrant streets, heritage landmarks, and scenic waterfront. The participants explored iconic attractions such as the Chinese fishing nets, heritage churches, and local markets, gaining insight into the region's rich multicultural history.

On Day 2, the spouses were taken to the serene Kuzhupilly Beach, where they enjoyed the tranquil coastal environment, fresh sea breeze, and picturesque shoreline. The outing offered a refreshing break and an

opportunity for relaxation. Later, the group visited Lulu Mall, one of the largest shopping destinations in the region, where participants explored retail outlets, local products, and dining options.

(ii) One day National Seminar on "Empowering Engineer's through BlM, Engineering Procurement and Construction (EPC), Arbitration & Reconciliation and Seismic design of building in NER with new code IS 1893-2025" along with Executive Council Meeting at IBC.

Seminar in Progress

The One-day National Seminar was Organised by Indian Buildings Congress Arunachal Pradesh Chapter Itanagar in collaboration with Public Works Department, GoAP on 21st February 2026 at D.K. Convention Centre, Itanagar on "Empowering Engineer's through BlM, Engineering Procurement and Construction (EPC), Arbitration & Reconciliation and Seismic design of building in NER with new code IS 1893-2025" in connection with 203rd. Executive Meeting of IBC.

Shri Hayeng Mangfi Hon'blc MLA & Advisor to Hon'ble Minister WRD, GoAP was invited as Chief Guest, Shri Mige Kamki, IAS Secretary (Legal Metrology & Consumer Affairs) as Guest of Honour, Shri Mika Nyori APCS Joint Secretary PWD & Ar. Jungam Basar Director (Housing) as Special Invitee on 21st February 2026 to grace the Inaugural Programme.

Er. O.P. Goel, Founder President, IBC was invited as the Chief Guest and Shri Likha Sunaj, Director (Town Planning & Urban Affairs) as Guest of Honour was invited to grace the occasion in the Valedictory function. Er. C. Debnath, President IBC graced the programme.

Citations were presented to the Builders & Contractors of Arunachal Pradesh & NER for their contribution in Built Environment and Road construction in Arunachal Pradesh and North Eastern Region Development activities.

The Executive Meeting of IBC was also held.

NERZ-Chapter Meeting with NEC in progress

A meeting of NER Chapter of lBC with National Executive Council (NEC) Members, Chairman, Vice Chairman, Honorary Secretary and other Management Committee Members of Chapters were conducted at Hotel Moomsie with 7 states of NER Chapter on 20/02/2026. The members of Manipur & Mizoram Chapter could not participate physically; however, they attended the meeting via online. The meeting was chaired by Er. Debnath President, IBC & Co- Chaired by Dr. Toli-Basar Chairman of NER Zone & Vice President IBC, the meeting was aimed to share the problem faced by the NER Chapter & smooth running of IBC. All the Chapters briefed about their activities.

(iii) IBC Book Stall at Bharat Mandapam

A book stall was installed at Bharat Mandapam on 25-27 Feb., 2026. Er. C. Debnath, President, Er. O.P. Goel Founder, President, Col. Anand, Hony. Secretary and Er. I.S. Sidhu, Executive Director, IBC visited the Bharat Mandapam. In addition, GC Member, Past President, IBC Members and IBC staff visited stall of IBC in the Bharat Mandapam.

II. Zonal Meetings

(i) Zonal Meeting at Telangana

The Southern Zonal Meeting & Technical Seminar on **"Green Building Concept in Built Environment"**

was held on 04th January 2026 at Visvesvaraya Bhavan, Institution of Engineers (India), Khairatabad, Hyderabad.

- Chief Guest: Er. G. Rajeswar Reddy, Chief Engineer, R&B (Buildings), Government of Telangana
- Special Chief Guest: Er. Y. Linga Reddy, Chief Engineer, R&B (Electrical), Government of Telangana
- Guest of Honour: Dr. Prof. Ramana Naik Banoth, Chairman, Institution of Engineers (India), Telangana State Chapter
- President of the Program: Er. Chinmay Debnath, President, Indian Buildings Congress, New Delhi

Seminar in progress

Themes & Presentations:

A comprehensive technical seminar was conducted focusing on contemporary and relevant themes in building technology, sustainability, and professional values. The following technical sessions were delivered by the eminent speakers:

- HVAC Aspects in Building Design
  Speaker: Sri Anand

  The session highlighted modem HVAC planning, energy efficiency, indoor air quality, and integration of HVAC systems with sustainable building design.
- Green Building & Design Aspects
  Speaker: Ar. Chetana Jain

  The presentation focused on sustainable architectural practices, green materials, energy conservation strategies, and environmentally responsible building design.
- Advanced Technology in Steel Construction
  Speaker: Representatives from JSPL (Jindal Stainless / Steel)

  This session covered advanced steel technologies, innovative applications, durability, and the role of steel in modern and sustainable construction.
- The Art of Living — Values in Professional Life
  Speaker: Sri G. Seetharamulu, Fmr. Chief Engineer, Panchayat Raj Department The talk emphasized balanced living, professional integrity, and holistic development for engineers and professionals.

Recommendations and outcome of the Seminar

- While approving Building plans by the Local bodies, priority and special incentive is suggested and certain remissions in the license fee to encourage sustainable built environment.
- Open yard greenery of certain percentage of open space(s) made mandatory for sanction of building plans.
- Extensive Monitoring of Air Quality Index in the Urban local bodies is suggested by installing instruments spread across the Municipal area for corrective measures for public convenience and safety.
- In planning and design of Buildings, consideration of room temperatures, influencing air quality of surrounding plays vital towards green buildings concept.

The technical sessions were well-received by the participants and generated meaningful discussions and interactions. The seminar recorded encouraging participation from engineers, professionals, and members of various organizations. The gathering included engineers from various government departments, reflecting strong institutional involvement.

After the Technical Seminar a Review Meeting of Southern Zone was held under the leadership of Er. C. Debnath, President, IBC.

The meeting was attended by the following office bearers and members:

Er. M. Nagaraj - Vice President, IBC; Er. Mendu Satyanarayana, South Zone Vice Chairman; Er. K. Rajkumar, Vice Chairman, IBC Telangana State Chapter; Er. V. Venkata Narayana — Hony. Secretary, IBC Telangana State Chapter; Er. N. Ravindra Reddy - Treasurer, IBC Telangana State Chapter; Dr. I. Satyanarayana Raju, G C Member, IBC Telangana; Er. M. Ganesh, Chairman, Karnataka State Chapter, (KSC) Bengaluru; Er. G.D. Kumara, Hony. Secretary, KSC, Bengaluru; Er. K Mohan - GC Member, Bengaluru; Er. Yacub Mohan George, Hony. Secy. Kerala Chapter; Er. V Sreedhar Reddy, Treasurer, Andhra Pradesh State Chapter

The following office bearers participated in virtual mode: -

Er. O. P. Goel, Founder President, IBC; Dr. Anil Joseph, Chairman, Kerala State Chapter; Er. K. Nayemullah, Chairman, AP State Chapter; Dr. S. Thirougnaname, Chairman, Puducherry State Chapter; Er. K. Vinod Raja, Hony. Secy., Tamilnadu State Chapter; Er. I.S. Sidhu, Executive Director IBC, HQ; Ms. Sunita Joshi, State Chapters Coordinator, IBC HQ.

The review meeting was presided by Er. M. Nagaraj, Vice President, IBC and Chairman, South Zone Coordination Committee. The Chairman emphasised the need and necessity of the zonal wise Coordination committee and meeting of the State chapters of IBC. During the meeting, Founder President Er. O. P. Goel addressed the gathering and emphasized the vision, objectives and continued relevance of IBC in the evolving construction and infrastructure sector.

The representatives of the respective state chapters narrated ongoing activities and discussed future programmes, strategic plans for effective functioning of the IBC chapters in the southern region of IBC.

Er. C. Debnath, President IBC appealed to Southern Zone State Chapters for targeted enrolment of IBC membership and immediately opening of bank accounts by state chapters mandated by financial norms of IBC. Further appreciated the efforts of IBC Telangana State Chapter in hosting the Southern Zone State Chapters meet at Hyderabad. Er. Satyanarayana Mendu, EC Member and Co-chairman, South Zone Coordination Committee, reiterated the vision and efforts put by the President, IBC in pulling the IBC on to the track in all the States and for its development as professional body on par with other reputed engineering professional bodies.

(ii) Zonal meeting of IBC, Northern Region and Technical Seminar at Panchkula on 3rd January 2026

Meeting of the Northern Zone of the Indian Building Congress (IBC) was held on 3rd January 2026 at the PWD Rest House, Panchkula. The members joined in virtual mode also. The meeting was attended by engineers and representatives from Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Uttar Pradesh, Delhi, and Chandigarh state chapters. The meeting was chaired by Er. C. Debnath, President, Indian Building Congress.

Zonal Coordination Committee meeting, Panchkula in progress

Er. Anil Dahiya, Engineer-in-Chief, Haryana PWD (B&R) and Chairman, IBC Haryana; Er. Yogesh Mehra, Chief Engineer, Haryana PWD (B&R) and Vice Chairman, IBC Haryana; and Er. Harpal Singh, Superintending Engineer, PWD (B&R) and Secretary, IBC Haryana actively participated in the meeting.

Er. C B Ojha, Chief Engineer Chandigarh and Er. Suresh Kumar Bairwa, Ex Addl Chief Engineer PWD were also present in the meeting.

Detailed discussions were held in the seminar on the adoption of new technologies, infrastructure development, quality assurance, and green building techniques in the construction of government and public buildings. Engineers from various states shared their experiences and innovative building practices being implemented in their respective regions.

Addressing the meeting, IBC President, Er. C. Debnath stated that extensive consultations were held based on suggestions received from engineers of all Northern Zone states. A technical session on green building technologies was also conducted. He informed that the suggestions received during the meeting would be compiled and submitted to the Government in the form of a detailed report.

Er. Debnath emphasized that different states have varying geographical conditions—such as Himachal Pradesh and Meghalaya, where specialized construction technologies are required. He also stressed the need for joint training programs for engineers.

Highlighting seismic concerns, Er. Debnath stated that Haryana has now been categorized under Seismic Zone-6, making it imperative to prioritize seismic safety in building construction.

Speaking on the occasion, Shri Yogesh Mehra, Chief Engineer, Haryana PWD (B&R) and Vice Chairman, IBC Haryana said that several important issues were deliberated during the meeting. He informed that Panchkula has shifted from Seismic Zone-4 to Zone-6, necessitating the adoption of advanced and safer technologies in the construction of high-rise and other buildings. He further emphasized the need for coordinated training of engineers along with strict

quality assurance measures to ensure the durability and safety of construction works.

III. Participation of IBC in Various Events

(i) Meeting with Er. Sanjay Kujur, E-in-C, BCD, Jharkhand

Built Environment magazine of IBC being presented to Er. Sanjay Kujur, E-in-C

A meeting between Er. C. Debnath, President, IBC and Er. Sanjay Kujur, E-in-C, BCD & also the Chairman of IBC Jharkhand Chapter was held on 13th.February, 2026 where Er. Naseem Ali, Hony Secy, IBC Jharkhand State Chapter and Er. Samar Prasad, CE, BCD were also present. During the meeting the Built Environment magazine of IBC was presented to E-in-C. BCD has allotted two rooms in Circle office complex adjacent to CEs office for IBC. The room was visited by the President. During discussion, it was planned to have some small technical programmes office wise & other department wise which will attract membership drive. It was also requested to send trainees to IBC HQ during the training programmes.

Discussion was also held with CE, CPWD, Ranchi regarding IBC. The discussion was very fruitful.

(ii) Meeting with Secretary PWD, West Bengal

A high-level meeting in the chamber of Honorable Secretary PWD West Bengal Smt. Antara Acharya was held on 15th January, 2026 in presence of Er C. Debnath President IBC; Engineer in Chief PWD; Former Secy. IBC West Bengal Chapter; Chairman and Vice Chairman IBC West Bengal Chapter and other member of IBC West Bengal. Various training programme, joint activities of IBC West Bengal and PWD during the coming months were discussed along with the national seminar cum GC meeting of IBC.

(iii) President IBC visited IBC office Itanagar

The Executive Members of IBC lead by Er. C. Debnath, President, IBC visited IBC Office Itanagar Chapter on 22nd. February, 2026.

They were received by the Chairman, Vice Chairman. Hony. Secretary and accorded warm welcome. During the visit the members visited the IBC Office at Itanagar and found the chapter worthy of being one of the best IBC Office in the Country, followed by visit of Gumpa Mandir & Jawaharlal Nehru State Museum Itanagar before Departure to Donyi Polo Airport Hollongi Itanagar Arunachal Pradesh.

IV News of Activities at IBC Chapters

A. Himachal Pradesh State Chapter

(i) Management Committee Meeting

IBC Himachal Pradesh State Chapter organized a Management Committee Meeting on 14th January, 2026 at Nirman Bhawan, Shimla -2 under the Chairmanship of Er. Anita Kathuria, Chairman, IBC Himachal Pradesh State Chapter.

After detailed deliberation, the committee unanimously resolved that Er. Amit Sharma, Executive Engineer (M) will be the Hony. Secy of IBC Himachal Pradesh State Chapter.

The meeting ended with a Vote of thanks to the Chair.

B. J&K State Chapter

(i) National Tourism Day

A Technical discussion in physical mode to mark the National Tourism Day focusing on the importance of safe, sustainable and resilient infrastructure for strengthening the tourism sector in Jammu & Kashmir was held on 25th January, 2026.

Addressing the gathering, Er. Irfan Shafi Parray, Honorary Secretary, IBC J&K Chapter, said that tourism is a key driver of the region's economy and that well planned and robust infrastructure is essential for economic growth, employment generation and balanced regional development. He said that recent incidents of heavy snowfall, windstorms and other extreme weather conditions across the region have once again highlighted the vulnerability of tourism infrastructure and the urgent need for climate responsive planning.

C. Andhra Pradesh State Chapter

A meeting was conducted on 9th. March 2026 to constitute a new Adhoc body of Andhra Pradesh State Chapter. The meeting was graced by the presence of Er. M. Nagaraj, South Zone Chairman of IBC, the Chairman of the Telangana State Chapter and several distinguished delegates. Senior officers and professionals from the Roads & Buildings Department,

Dignitaries during the Meeting of Andhra Pradesh Chapter

Panchayat Raj Department, ADCL, and Andhra Pradesh Capital Region Development Authority, along with representatives from the Builders Association of India and SaBCA, Heads of Departments, engineers, and staff members actively participated in the meeting.

During the session, the vision, significance, and activities of IBC, emphasizing its role as a premier professional platform that promotes knowledge exchange, best practices, innovation, and collaboration in the infrastructure and construction sectors were discussed.

It was particularly encouraging to see the enthusiastic response from participants. Many members expressed their willingness to join IBC and actively contribute to strengthening the professional network in Andhra Pradesh. Such collective engagement will help enhance professional standards, encourage innovation, and support the development of quality infrastructure in the state.

Further in the meeting a new ad hoc body was selected by the common consent of the members.

Ex-Officio Chief Patron – Er. Nirmala, CE, Buildings, R&B; Chairman – Er. B. Aruna Devi, PD, APRDC, R&B; Vice Chairman – Er. V.Uma Maheswara Reddy, GM, APRDC, R&B; Hony Secretary- Er. V. Sreedhar Reddy, EE, APRDC, R&B; Treasurer -Er. I.V. Priya Kumar Dy. EE, D&P, R&B; Members – Er. M. Lingam Naidu, APMSIDC (EE); Er. K. Naveen, State Architect, R&B; Er, Dhananjaneyudu, CE, APCRDA; Er. G.Jayaraju, PR (SE) (Rtd.); Er. P. Seshagiri Rao, BAI-state Chairman, BAI; Er. M.V.A. Surya Prakash (GS), SABCA; Er, Raj Kumar (EE), A.P. Housing Corporation.

D. Arunachal Pradesh State Chapter

(i) National Tourism Day

IBC Arunachal Pradesh State Chapter organized the National Tourism Day on 25th January, 2026 at Western Zone, PWD Office, Arunachal Pradesh with the theme **"Digital Agenda & Artificial Intelligence to Re-Design Tourism"**. The theme highlighted the

National Tourism Day Celebrated

importance of focusing on the transformative impact of technology on the Tourism Sectors. The role of digital innovation and artificial intelligence in shaping the future of Travel experiences was discussed. Engineer and other officials of Arunachal Pradesh PWD participated in the programme.

Er. Marbom Bam, Director, (APEDA), Govt. of Arunachal Pradesh, Chief Guest shared his practical experiences and importance of Tourism to honour the pivotal role of Tourism in diriving global cultural exchange, economic growth and sustainable development.

E. Kota Local Chapter

(i) National Energy Day

National Energy Day celebrated

IBC Kota Local Chapter Organized the National Energy Day on 25th February 2026 at PWD Campus, Nayapura, Kota.

The program was organized to create awareness about energy efficiency and sustainable practices in the building sector. The event witnessed by enthusiastic participants amongst IBC members, engineers, and professionals from allied fields.

The program commenced with a warm Welcome Address by Er. Hemant Kumar Sharma, Chairman, IBC Kota Local Chapter.

The keynote lecture was delivered by Er. Sunil Bafna on the topic "Energy Management in Buildings." It was

highly informative and covered practical approaches for improving energy efficiency in building planning, design, and operation. He also explained the elements of the Solar System in buildings and the Government subsidy provisions to establish solar systems. He further discussed how to store solar energy in batteries to use the energy during peak hours of consumption, etc.

Shri Amjad Ahmad, Dy. Commissioner, Rajasthan Housing Board, Kota, was the Chief Guest on this occasion. He shared his practical experience about the energy project to be started in future at Shahabad, District Baran.

President of the programme Shri V. S. Yadava shared his views about solar energy and his experiences and problems in the execution of solar plants in buildings with Government subsidy.

The session was well appreciated by all attendees and followed by an interactive discussion.

The event was conducted by Er. Manish Jain, Hon. Secretary, who also proposed the Vote of Thanks.

The program concluded successfully with active engagement from members and reaffirmed the Chapter's commitment towards promoting sustainable development and energy-conscious building practices.

(ii) International Women's Day

International Women's Day celebrated

IBC Kota Local Chapter Organized International Women's Day On 6th March, 2026 at PWD Campus, Nayapura, Kota.

The program commenced with a welcome address by Er. Hemant Kumar Sharma, Chairman, who welcomed all the members and guests present in the program.

Er. Manish Jain, Honorary Secretary, highlighted the significance of International Women's Day and appreciated the dedication, strength, and valuable contribution of women in society as well as in the engineering profession.

The following women professionals were honoured in the programme for their valuable participation and contribution in the IBC Kota Local Chapter programmes:

1. Er. Neha Maheshwari, A.En., PWD Kota
2. Dr. Raksha Rani Sanadhya, Lecturer, Govt. Polytechnic College, Kota
3. Er. Bittu Nagar, A.En., City Sub Division, PWD Kota
4. Er. Shweta Gochar, A.En., Sub Division–I, Project Dn, P.W.D., Kota

On behalf of the honoured guests, Dr. Raksha Sanadhya expressed gratitude to the IBC Kota Chapter for organizing the program and honouring women professionals on the occasion of International Women's Day.

The program was attended by several engineers, professionals, and members of the Chapter.

(iii) National Tourism Day

Tourism day celebrated

IBC Kota Local Chapter Organized Tourism Day on the topic "Current Trends in International Tourism" on 06th March 2026 at PWD Campus, Nayapura, Kota

The program was organized to create awareness among members about emerging global trends in tourism and their wider social and economic impact.

Shri Parmanand Goyal, Revenue Advisor, Kota Development Authority, Kota was the keynote speaker of the program. He delivered an insightful lecture highlighting various aspects of international tourism and emerging global trends such as digital tourism, experiential tourism, wellness and medical tourism and cultural & religious tourism. He also shared examples from international tourist destinations such as Dubai, Paris, Thailand, and Bhutan to explain how tourism patterns are evolving worldwide.

The program was graced by Er. S. K. Singhal, Superintending Engineer, Survey & Quality Control Circle,PWD, Kota as the Chief Guest. The program was

chaired by Er. Hemant Kumar Sharma, Chairman, IBC Kota Local Chapter.

Other dignitaries on the dais were Er. Manish Jain, Honorary Secretary; Er. Ashok Sanadhya, Treasurer and Shri Sunil Garg, Vice Chairman. The Chairman welcomed the guests and participants at the beginning of the program.

Several senior members including Er. Suresh Kumar Bairwa (Past Chairman IBC Kota Chapter), Er. P. K. Jain (Past Chairman IBC, Kota Chapter), Er. V. K. Jain, Er. Shanti Lal Jain, Er. Om Jain, Er. Piyush Goyal, Dr. Raksha Sanadhya, Er. Sharad Saxena, Er. R. C. Gupta, and Er. Amit Jain was also present and shared their views during the program.

Er. Piyush Goyal also shared that various types of tourism are available in Kota, like Jungle Safari in Mukundra National Park, Chambal Safari (Crocodile) in Chambal River from Chambal Garden to Garadia Mahadev, and religious tourism such as Mathuradheesh Temple, Kansua Mahadev Ji, Dad Devi Temple, Charan Chauki, and Vibhishan Temple (only one in India) in Kaithoon. He also mentioned Chattaneshwar for rock paintings, 84 Khambho Ki Chhatriyan, Rani Ji Ki Baori at Bundi, Sorsan Sanctuary in Baran, Keshav Rai Ji Temple in Keshav Rai Patan, River Front & City Park, ISKCON Temple, Khade Ganesh Ji, and Godavari Dham Balaji Temple in Kota, etc.

F. Odisha State Chapter

(i) World Water Day

The Odisha State Chapter of the Indian Buildings Congress organized a virtual programme on the observance of World Water Day on 22nd March, 2026. The meeting was chaired by Er. Bijoy Chandra Tripathy, Chairman, IBC Odisha Chapter and Vice President, IBC. The programme attended by participation from distinguished experts, senior officers, former administrators, consultants, and members of IBC.

The following notable speakers participated in the programme:-

Er. Ashok Kumar Basa, Internal Auditor, World Federation of Engineering Organizations; Dr. Sarat Chandra Sahu, Former Director, IMD, Bhubaneswar; Er. Saroj Kumar Patnaik, Former Engineer-in-Chief, Department of Water Resources, Govt. of Odisha; Dr. Akshaya Das, Chief Engineer, Department of Water Resources, Govt. of Odisha; Er. Nilachal Gauda, Engineer-in-Chief, Department of Water Resources, Govt. of Odisha; Er. Bipin Padhy, Consultant.

The keynote deliberation, led by Er. Ashok Kumar Basa, highlighted global and national water challenges, stressing sustainable management amid rising scarcity. He urged Odisha to envision becoming water-surplus by 2036, citing its pioneering reforms in power and disaster management. Dr. Sarat Chandra Sahu emphasized water's fundamental role in life and civilization, recalling historical crises like the Indus Valley decline and Odisha's 1866 famine. He warned of growing stress from urbanization, pollution, and climate change, alongside the loss of wetlands and vegetation.

Dr. Das addressed "Water and Gender," noting improved access for women over five decades and the impact of Jal Jeevan and Swachh Bharat Missions. He advocated conservation, pollution prevention, integrated resource management, and women's leadership in WASH initiatives, quoting Gandhi: "The earth has enough for everyone's need, but not for everyone's greed."

Er. Saroj Kumar Patnaik traced World Water Day themes, linking water to health, economy, and environment. Er. Lingaraj Gouda outlined Odisha's initiatives like in-stream storage, while Er. Bipin Padh suggested innovative check dams and canal recharge.

The meeting stressed rainwater harvesting, pollution prevention, climate-resilient practices, and community participation, concluding with thanks and a collective call for sustainable water management.

(ii) National Tourism Day

The IBC Odisha State Chapter organised National Tourism Day on January 25, 2026, through a high-level online technical lecture and panel discussion. Chaired by prominent experts including Er. Ashok Basa, Prof. Pravat Kumar Parhi, and Mr. Sabyasachi Nayak (OTDC), the session explored the vital intersections between transport, hospitality, and sustainable development. A highlight of the event was Mr. Nayak's detailed presentation on the strategic tourism roadmap currently being charted by the Government of Odisha, alongside deliberations on improving connectivity, safety, and medical infrastructure to bolster niche sectors like heritage and eco-tourism.

(iii) 7th Circle Level Technical Seminar

The IBC Odisha State Chapter organised 7th Circle Level Technical Seminar at Dhenkanal on 7th February, 2026. The focus of Seminar was on **"Structural Integrity & Construction Safety".** Er. Purna Chandra Dalai, Chief Construction Engineer of the Dhenkanal Circle organised it, which was presided over by Chapter

7th Circle Level Technical Seminar at Dhenkanal, Odisha

Chairman Er. Bijoy Ch. Tripathy. The seminar featured a technical presentation by Er. Muthu Murugesan on earthquake-resistant design. Er. Manoranjan Misra, GC Member addressed the "five critical fields" of safety that engineers must prioritize across various construction stages, providing a holistic framework for the 50 engineers in attendance from Dhenkanal and surrounding circles.

Management Committee Meeting on Mar 26

G. Puducherry Chapter

World Water Day

World Water Day 2026 was celebrated by the Indian Buildings Congress Puducherry Chapter in association with the Institution of Engineers (India), Puducherry State Chapter and in co-ordination with Public Works Department on 23.03.2026 in PWD office, Puducherry. The celebration was attended by Engineers of various cadre of PWD, Puducherry and members of IBC Puducherry Chapter and IEI Puducherry UT Chapter.

Er. M. Kandar Selvan, Honorary Secretary of IBC Puducherry Chapter welcomed the participants. Er. K. Soundirarajan gave introductory speech. Dr. S. Thirougnaname, Chairman of IBC Puducherry Chapter gave presidential address. Er. Sundiramurthy, Superintending Engineer, PWD felicitated the Celebration and started the function. Er. Ramesh Kumawat, IBC GC member who attended the function gave felicitation speech.

Er. R. Devadassou, and Dr. T V Srinivas Murthy gave speech on "Water and Gender." The programme ended by delivering vote of thanks by Er. Vidjea Nehru Velayutham, Treasurer, IBC Puducherry Chapter.

H. Rajasthan State Chapter

World Water Day

The School of Architecture & Design, Manipal University Jaipur, in collaboration with the Indian Buildings Congress (IBC), organized a study visit to the Dravyavati River Front, Jaipur, as part of an awareness initiative aligned with World Water Day. A group of B.Arch students participated in the visit, accompanied by faculty members Dr. Subhash Chandra Devrath and Ar. Akshay Gupta.

The visit provided students with valuable on-site exposure to one of Jaipur's major urban river rejuvenation projects. The Dravyavati River Front demonstrates how ecological restoration can be integrated with urban design and public infrastructure to improve environmental quality and public spaces within the city.

During the visit, students observed various planning and design interventions such as river channel improvement, landscape development, pedestrian pathways, and the creation of green corridors along the river edge. Discussions also focused on wastewater management systems, stormwater handling, and sustainable infrastructure strategies implemented as part of the riverfront development.

The activity encouraged interdisciplinary learning and helped students understand how large- scale urban environmental projects contribute to water conservation, urban resilience, and improved public open spaces. The visit served as a practical learning experience, enabling students to connect academic knowledge with real-world urban development practices.

I. West Bengal State Chapter

(i) Technical Seminar on "Conservation & Retrofitting of Heritage Structures" in West Bengal

Seminar on "Conservation & Retrofitting of Heritage Structures" in Progress

A seminar on **"Conservation & retrofitting of Heritage structures"** was organized on 14th. Feb., 2026 at Dhanadhanya Auditorium, Kolkata. Er. C. Debnath, President IBC, Smt. Antara Acharya, Secy PWD, E-in-C Engineers and Architects of PWD, West Bengal including officials of CPWD were present in the programme.

Technical Session I

Prof. Manish Chakrborty, Nivedita University and Conservation Architect delivered lecture and presentation on Conservation of Heritage Building; Principles; Legislations and Protocols.

Er. Arunendu Banerjee, Consultant West Bengal Heritage Commission, Building Conservator, Environmental Planner, Designer, Artist and Writer delivered lecture and presentation on Heritage; Conservation; Restoration and Continuation.

Technical Session II

Dr. Bhaskar Sengupta, Specialist in Structural Conservation of Heritage Buildings, Health Auditor of Heritage Buildings delivered lecture and presentation on Environmental threats on Heritage Buildings in India; Causes of dilapidation and distress; Diagnostics and structural preservation.

Dr. Surojit Maity, Ex. Director (Science) Archeological Survey of India delivered a lecture and presentation on Scientific Conservation and Preservation for Built Cultural Heritage.

(ii) National Tourism Day & World Water Day

The West Bengal Chapter organised hybrid as well as in physical mode, the World Tourism Day with speaker Architect Vineet Gupta, CGA PWD and World water day with speaker Dr Bhaskar Sengupta on 20th March 2026.

J. Chhattisgarh State Chapter

World Water Day

The Indian Buildings Congress (IBC), Chhattisgarh State Chapter (CSC), Raipur, organized World Water Day on Friday, 3rd April 2026 with the objective of creating awareness about water conservation, sustainable water management, and groundwater recharge. The event was conducted in alignment with the global theme of World Water Day 2026 – **"Water and Gender."**

The programme witnessed enthusiastic participation, with more than 50 members of the IBC CSC attending the event.

Inaugural Session: The programme commenced with a welcome address by Dr. Debasish Sanyal, Chairperson, Indian Buildings Congress, Chhattisgarh State Chapter, Raipur. Dr. Sanyal highlighted the importance of World Water Day and emphasized the responsibility of professionals, planners, and citizens in conserving water resources for future generations.

Er. Anil Tiwari, Honorary Secretary, IBC CSC, welcomed all members and invited guests. An overview of the programme objectives and the relevance of water conservation in the present context was shared with the audience.

Technical and Awareness Address: The keynote address was delivered by Dr. Vipin Dubey, a renowned expert in rainwater harvesting and water conservation. Dr. Dubey expressed deep concern over the increasing scarcity of water in Raipur city, across Chhattisgarh State, and globally.

Dr. Dubey emphasized that India is not running out of water; rather, water is running out of the country, as a significant portion of rainfall flows away as surface runoff. This situation calls for urgent attention towards effective water management and groundwater recharge rather than relying solely on new water sources.

Five "R" Concept of Water Management: Dr. Dubey elaborated on the Five "R" Concept as a practical approach to water conservation:

- Respect: The mindful use of water is to be respected
- Reuse of Water: Utilization of water discharged from washing machines and dishwashers for secondary purposes.
- Recycling of Water: Recycling water used for washing utensils, clothes, and vehicles.
- Recharge of Groundwater: Adoption of rooftop rainwater harvesting systems using vertical filters to recharge groundwater resources.
- Reduce: Reduce the wastage of water by reducing the water wastage like for washing the vehicles.

These measures were explained as cost-effective and sustainable solutions that can be implemented at household and institutional levels.

Key Observations and Concerns: During the address, several critical issues were highlighted:

- Despite receiving an average annual rainfall of approximately 900 mm, India continues to face water scarcity due to poor management.
- Cloud seeding, though being practiced, is a highly expensive solution and cannot replace long-term water conservation strategies.
- Nearly 500 billion litres of water are wasted annually in India, which is a major cause of water stress.
- Serious concern was expressed over the depletion of rainfall, changing weather patterns, and climate variability.
- An appeal was made to the government to introduce water education from the primary school level to inculcate conservation habits at an early age.

The relevance of the World Water Day theme "Water and Gender" was also discussed, highlighting the social dimensions of water availability and management.

Recognition and Appreciation: Dr. Vipin Dubey was acknowledged as the first person from Chhattisgarh State to receive a National Award for outstanding contribution to rainwater harvesting. The audience appreciated the significant role played by Dr. Dubey in promoting sustainable water practices.

As a token of respect and appreciation, Dr. Debasish Sanyal, Chairperson, IBC CSC, Raipur, presented a sapling to Dr. Vipin Dubey Ji, symbolizing environmental responsibility and sustainability.

Conclusion and Vote of Thanks: The programme concluded with a vote of thanks by Anil Tiwari, Honorary Secretary, IBC CSC. Gratitude was expressed to the speaker, members, and all participants for their valuable presence and contributions, which made the event informative and successful.

Outcome of the Programme: The World Water Day celebration successfully created awareness among members about:

- The urgency of water conservation
- Practical water management techniques
- The importance of groundwater recharge
- The need for education and policy-level interventions

The event reinforced IBC's commitment to promoting sustainable building practices and responsible water management.

H. Assam State Chapter

World Water Day

Indian Buildings Congress Assam State Chapter in association with a local NGO People for Change organized World Water Day on 21st March, 2026 at Maloibari Balak Balika Madhyamik Vidyalaya about 60 km from Guwahati under Kamrup Metropolitan District. Along with the students and teachers of the school, local farmers also participated in the event. The meeting emphasized awareness about water conservation, its proper use and management and highlighted the importance of women's participation in these efforts.

The programme was presided over by Er. Dilip Deka, Chairman of the IBC, Assam State Chapter. In his address, he stated that water is the fundamental resource of life. Therefore, everyone should come forward to conserve water, ensure proper use of clean water, and protect the environment. He also called upon all to play an active role in advancing towards sustainable development by raising awareness in line with the Sustainable Development Goals declared by the United Nations, to be achieved by 2030, and the significance of World Water Day in this regard.

Er Pulak Sarmah, Honorary Secretary of IBC-ASC elaborated the objectives and activities of the Indian Buildings Congress as well as delivered the Keynote Address on the World Water Day.

Er. Mayur Bhuyan, Fmr. Chief Engineer, Irrigation, Assam was invited as Speaker and he delivered a detailed presentation on the subject using a Power Point projector. The school's Headmistress, Mrs. Beauty Devi also delivered an informative speech on the importance of safe and clean drinking water and its responsible and proper use. She stressed on the role of women in the management of water resources.

World Water Day celebrated

Prof (Dr) Palash Jyoti Hazarika of Assam Engineering College, Er Sumitav Saikia, Er Deba Kr Choudhury and Er Hemendra Kr Barman all members of the TRUST – People for Change also participated in the event.

Some motivational short film and videos on the preservation and judious uses of water also screened for the students. Later, a book – Burhi Aair Xadhu was distributed and refreshments served among the students.

The event was applauded by the local community and extensively covered in the local vernacular daily Newspaper like Asomiya Pradidin and Amar Asom.

K. Tripura State Chapter

(i) Workshop on Field -Driven Civil Engineering: Real - Time Applications & Execution Strategies

Workshop in Progress

The IBC Tripura Chapter and The ICFAI University, Tripura organised a three days workshop on "Field -Driven Civil Engineering: Real-Time Applications & Execution Strategies" on 18 -20 February, 2026 at ICFAI University Tripura. Dr. A Ranganath delivered the welcome address. Dr. Priyangshu Rana Borthakur, Dean, Faculty of Science & Technology, the ICFAI University, Tripura addressed the participants. Er. C. Debnath, President, IBC; Er. Kapil Baran Bhaumik, Fmr. DGM, HUDCO Ltd. addressed the gathering. Dr. Prasanta Kumar Sinha, Principal, ICFAI Technical School, ICFAI University Tripura delivered the Vote of Thanks.

World Water Day

World Water Day celebrated

The World Water Day was observed by IBC, Tripura Chapter jointly with IPHE, Tripura Centre in collaboration with Water Resource Wing, PWD, Tripura on 26th. March, 2026 at the WR Conference Hall, Kunjaban, Agartala. The programme was graced by Er. C Debnath, President, IBC & also Vice President, IPHE; Er. R K Majumdar, IAS (Retd.), Fmr. Director UD Deptt., Tripura & Er Kshudiram Tripura, CE, RD Dept, Tripura. The programme was presided over by Er. Bimal Das, Chairman, IBC Tripura Chapter. Welcome address was delivered by Er. Shyamlal Bhaumik, Chairman, IPHE, Tripura Centre. Presentation on the topic "Water and Garden - Where water flows, Equity Grow" was given by Er. Sushanta Kr. Nath, SE, WR, Tripura & Er. Sitangshu Chakraborty, Executive Engineer, Tripura Jal Board. Er. Debabrata Debbarma, Hony. Secretary, IBC Tripura Chapter, Er. Dipak Ch. Das, Former E-in-Chief, PWD, Tripura also spoke on the occasion.

V. National News

From Farm Residue to Road: Bio-Bitumen via Pyrolysis

Scientists at CSIR-Central Road Re-search Institute (CRRD by using a new bio-bi tumen technology, they have found a way to convert rice straw and other crop residue into road-building material, offering a smart solution to both air pollution and the rising cost of infrastructure.

The technology took a decisive step forward when it was formally transferred to 14 companies in the presence of Union Road transport and highways minister Shri Nitin Gadkari, signalling strong industry interest.

India becomes the first country in the world to commercially produce bio-bitumen. The technology is excellent and has huge potential. Speaking at CSIR's Technology Transfer Ceremony, titled "Farm Residue to Road: Bio Bitumen via Pyrolysis".

According to CRRI scientists, road with bio-bitumen are just as strong, or even stronger than ones with conventional bitumen resisting cracks, potholes and the scorching Delhi summer heat.

In 2021, CRRI scientists G Bharath and Ambika Behl addressed a key question-could Delhi's pollution problem itself become part of the solution? They focused on stubble burning, a major contributor to the city's winter smog, and began experimenting with agricultural waste.

Working in collaboration with CSIR-Indian Institute of Petroleum, the team spent three years refining the process. The first trial road using bio-bitumen was laid in Meghalaya in 2024. "This stretch has faced two monsoons and still maintains highway quality," an official aware of the project said.

The process is straight forward: instead of being burnt, rice straw is collected from farms, compressed into small pellets and heated in a low-oxygen environment to release bio-oil. This oil is then blended with conventional bitumen, partially replacing petroleum-based material. The resulting mix behaves just like regular bitumen, making it suitable for durable road construction.

The beauty of this technology is that it works with the machinery we already have. You don't need to reinvent the wheel to lay a bio-bitumen road," Bharath said, adding that bio-bitumen is also cheaper than traditional bitumen. (Source TOI dt: 08/01/26)

Bullet Train Project marks 'Major Milestone'

Marking a major milestone, the Mumbai-Ahmedabad High Speed Rail (MAHSR) corridor achieved a breakthrough in its first mountain tunnel and second tunnel overall in Maharashtra's Palghar. There are seven mountain tunnels and one undersea tunnel in this project.

A tunnel breakthrough is the point or moment when a tunnel being excavated from both ends finally connects, marking the completion of a critical work.

Located between Virar and Boisar bullet train stations in Palghar, the 1.5-km-long MT-5 is the longest mountain tunnel in the project. It is almost 55% complete. Of the 508 km length of the bullet train project, tunnels comprise 274 km. Of these, 21km make up the underground tunnels while the length of surface tunnels is 6.4 km. Surface tunnels include eight mountain tunnels, seven of which are in Maharashtra (6.05 km) while one is in Gujarat (350 m).

Officials said that the excavation in the MT-5 tunnel was completed in 18 months. It was being excavated from both sides using a cutting-edge drill and blast method - the New Austrian Tunnelling Method (NATM). NATM is used in places where rock formation is not uniform, requiring small-scale excavation through blasting with machinery being deployed on the basis of site conditions.

Earlier, a breakthrough of a 4.88-km underground tunnel between Ghansoli and Shilphata was achieved in September 2025. This tunnel is part of a bigger, 21-km tunnel constructed between Bandra- Kurla complex (BKC) and Shilphata in Maharashtra. This tunnel stretch also includes a 7-KM long undersea section beneath the Thane creek.

The bullet train project spans 352 km in Gujarat and Dadra and Nagar Haveli and 156 km in Maharashtra. As of November 2025, the project has achieved 55.63% physical progress and 69.62% financial progress. (Source The Indian Express dt: 03/01/2026.)

25 years later: Lessons from devastating Kutch earthquake

Ahmedabad: The devastating earthquake 25 years ago put the Kutch region in sharp focus. It was the second

earthquake of over magnitude 7 in a century. While the 1819 earthquake at Allah Bund was believed to have a magnitude of 7.7 to 8.2, the earthquake in 2001 was recorded at 7.7, one of the biggest in peninsular India.

A three-day conference at the Institute of Seismological Research (ISR), Gandhinagar, on the theme 'Intraplate and Himalayan Seismology: Developments in the Last 25 Years' focused on various aspects of Gujarat's seismology and future hazards. At the recently held conference, Dr. Sumer Chopra, Former Director of ISR and professor at IIT Roorkee, highlighted in his talk that the Kutch and Saurashtra regions are moving northwards in the same direction as the Indian plate, but northern parts of mainland Gujarat, identified in seismological terms as the Cambay Rift, are moving south-westwards, making it a potential place for the accumulation of strain.

He said that the 2001 event took place due to intraplate activity caused by multiple factors. The event also put in focus the role of mantle fluids in seismic activities. Research at ISR revealed the presence of a fluid reservoir in the uppermost mantle (40-45km) in eastern Kutch. The near-vertical, dipping South Wagad Fault (SWF) traverses the entire crust and acts as a channel for fluid flow to upper crustal depths, along with its splay fault, the North Wagad Fault (NWF), causing the 2001 Bhuj earthquake and continuing seismic activity to date.

Talking to TOI, he said that the event resulted in many aftershocks, and even today the region remains active. "It activated some of the faults through transfer of stresses which might not have been activated for a long time. While the region and Gujarat at large experience low magnitude earthquakes even today, we believe that it can be compared to the periodic release of energy instead of releasing the entire accumulated energy in one major event," said Dr. Chopra. "Compared to Kutch, other regions of the state are relatively stable and do not pose danger for a large-scale tremor. Some parts like Gir, Bharuch, and Banas-Kantha showed seismic activity in the recent past."

Dr. O.P. Mishra, Director of the National Centre of Seismology, presented in his talk the results of studies in Kutch and indicated that post-2001, the region saw a long series of earthquakes that continue to date. They vary in magnitude from 2-3 to 5-6. He also compared the seismic energy released during the episodes to an atomic bomb. For example, the total energy released by quakes after 2001 collectively released 2.15x10^16 joules.

"Characteristics of a 5.3 magnitude earthquake in June 2020 in Kutch indicated a rupture area of about 20 square kilometres. The new events also took place in vicinity of the 2001 mainshock, giving us glimpse of the new ruptures, he said.

The conference was held in collaboration with the seismological Society of America. Researchers from various countries working in intraplate regions shared their experiences and research with ISR. (source TOI dt : 28/01/2026.)

Congratulation

IBC congratulates our Life Member Ar. Gajanand Ram who has taken over the charge of President, Council of Architecture.

QA Levels in IS 456: Quality Standards and Compliance

Saju S.

Former Director, Investigation and Quality Control & Design wing, Kerala PWD

1. The Structured Approach to Quality

Concrete construction is governed by a well-defined system of quality control, supported by standards such as IS 456 (currently under revision). Quality is managed through structured processes which includes mix design, material testing, sampling, and inspection. The framework provides clarity, consistency, and accountability in execution.

Within this system, different levels of quality control are defined based on the importance and complexity of the project, ensuring that higher levels of supervision and control are applied where required.

2. QA Levels and Their Intent

Quality Assurance (QA) levels, that are categorized as normal (QA1), medium (QA2), and high (QA3), are structured to align the level of control with the importance and criticality of the project. These levels are not merely classifications; they define the degree of supervision, process control, and testing rigor expected in execution. Just to reiterate, QA3 is for High Quality Assurance Level, applicable to high-rise buildings, large floor areas, projects with large concrete volumes, and special structures such as metro works and cable-supported bridges. Similarly, QA1 is for Structures up to 4 storeys with single floor plan area not more than 400m2 or projects having multiple structures with total built-up area less than 3000m2 or total concrete volume less than 1000 m3 ; and QA2 is for Structures up to 10 storeys or single floor plan area not more than 5000 m3 or structures of lesser size but high importance or structures of lesser size but high importance or structures with large span roofs, underground structures with deep foundations or projects with total concrete volume up to 3000 m3.

At higher QA levels, requirements extend beyond routine testing to include stricter control over materials, tighter supervision during execution, and closer monitoring of processes such as batching, placement, and curing. The intent is to minimize variability and ensure reliability, particularly in structures where failure consequences are significant.

This classification reflects an essential principle in concrete construction: quality cannot be treated as uniform.

3. From Framework to Practice

While QA frameworks define the processes, the quality of concrete ultimately depends on how these processes are executed in practice. Concrete construction is a sequence of interdependent activities such as material selection, mix design, batching, transportation, placement, compaction, and curing; each influencing the final outcome.

Variations can occur at any stage. Delays in transportation may affect workability; improper compaction can lead to voids; inadequate curing can reduce long-term strength and durability. Even when QA procedures are formally followed, inconsistencies in supervision, workmanship, and coordination can result in differing performance.

The QA system defines checkpoints, but the structure is shaped by what happens between those checkpoints. Quality is therefore not only a function of compliance with prescribed procedures, but of the continuity and discipline with which these procedures are implemented across all stages of construction.

4. The Limits of Testing and Inspection

Testing and inspection form the backbone of quality control within the QA framework defined by standards such as IS 456. At different QA levels, the frequency and rigor of testing increase, providing a structured mechanism for verification. However, testing represents performance at specific instances; when samples are taken and results are recorded. The in-situ concrete is influenced by continuous site conditions, including handling, placement, compaction, and curing, which are not fully captured by these discrete checks.

Thus, while QA levels strengthen control through increased testing and supervision, they do not entirely reflect the variability of execution between checkpoints. The system verifies compliance, but the overall quality depends on how consistently processes are maintained across all stages.

5. When COMPLIANCE Becomes the GOAL

Within higher QA levels, *the emphasis on testing, inspection, and documentation often leads to a perception*

that quality is assured once prescribed requirements are met. Compliance with codal provisions becomes the primary objective.

In such situations, attention may gradually shift from *process discipline to verification outcomes*. Variations in execution, such as delays in placement, inconsistent compaction, or inadequate curing; may not immediately affect test results *and therefore remain unnoticed*.

This creates a paradox: *even under stringent QA levels, variability in outcomes persists. The presence of control mechanisms does not eliminate the need for continuous supervision and attention to execution*.

6. Reframing Quality in Concrete Construction

QA levels and standards provide a structured framework for controlling quality by defining the extent of supervision, testing, and acceptance criteria. They establish the necessary conditions for achieving consistent outcomes.

However, quality in concrete construction is ultimately determined by how effectively these controls are implemented in practice. The transition from mix design to batching, placement, compaction, and curing is continuous, and performance depends on maintaining discipline at each stage.

QA levels define the extent of control; standards define the framework. Quality emerges from the consistency with which both are implemented across execution.

Standards define & QA controls, but Quality is built through EXECUTION.

Indian Buildings Congress (IBC)

Observance of Statutory Days

A. At IBC Head Quarter

S. No	Date	Subject/Day
1.	31st May	V.R. Vaish Memorial Lecture
2.	1st September	Foundation Day of IBC
3.	15th September	Engineers Day

B. At IBC Chapters

S. No	Date	Subject/Day
1.	25th January	National Tourism Day
2.	22nd March	World Water Day
3.	18th April	World Heritage Day
4.	22nd April	Earth Day
5.	5th June	World Environment Day
6.	1st September	Foundation Day of IBC
7.	15th September	Engineers Day
8.	October (1st Monday of Month)	World Habitat Day
9.	14th October	World Standard Day
10.	14th December	National Energy Conservation

Quality Begins Where Standards End - Lessons from Everyday Building Practice

Manoranjan Misra

Former E-in- C, Works Department, Odisha

1. The Comfort of Standards

In the built environment, standards are often treated as the primary guarantor of quality. Drawings are approved, specifications are frozen, checklists are ticked, and certificates are issued. Compliance offers comfort—it is visible, auditable, and defensible. Yet practitioners know that two projects, both **"as per standards,"** can produce vastly different outcomes.

Standards codify accumulated knowledge. They define minimum thresholds and provide a common language across designers, builders, regulators, and users. Without them, construction would lack coherence. But standards primarily operate in the realm of definition—what must be provided, what limits must not be crossed.

2. Quality as a Product of Decisions

Quality does not emerge from documents alone. It is shaped through decisions—how work is planned, sequenced, supervised, coordinated, and corrected. While standards define what is required, quality is determined by how consistently and thoughtfully those requirements are interpreted and executed.

Consider concrete work: identical specifications, identical tests, identical approvals—yet different surface finishes, crack patterns, and long-term performance. The difference lies not in the standard, but in batching discipline, curing practice, supervision, and responsiveness to site conditions.

3. Compliance is Static; Quality is Dynamic

Standards are static. Quality is dynamic. Standards remain unchanged while site conditions, constraints, and human behaviour evolve daily. This mismatch explains why compliance alone cannot guarantee outcomes.

Incremental decisions such as ***minor substitutions, relaxed inspections, deferred corrections;*** often appear harmless in isolation. Over time, their cumulative effect quietly reshapes the building. Quality erosion is rarely dramatic; it is gradual and normalised.

4. Quality Across the Life Cycle

The gap between standards and quality exists across all stages of a building's life cycle, though it manifests differently at each stage. During the design stage, standards prescribe minimum requirements—loads, dimensions, fire ratings, performance criteria—but quality depends on how well these requirements are integrated into a coherent, buildable, and unambiguous design. Coordination between disciplines, clarity of drawings, and anticipation of construction realities often determine whether a design performs well, even when it is fully compliant.

During **construction**, standards guide testing, inspections, and acceptance criteria. However, quality is shaped by execution discipline: sequencing of activities, workmanship, supervision, communication between trades, and the ability to respond appropriately to site conditions. Compliance may be demonstrated through test results and reports, but actual quality depends on consistency and attention across thousands of small decisions made on site.

During **operation and maintenance**, standards define inspection regimes, safety provisions, and maintenance requirements. Yet quality depends on how systems are used, monitored, and adapted over time. Changes in occupancy, deferred maintenance, and informal modifications can gradually alter performance, even though formal compliance remains unchanged. At each stage, standards act as reference points. Quality emerges from continuity of intent across stages.

5. When Standards Mask Quality Risks

A paradox emerges when compliance becomes the dominant objective. When teams focus primarily on satisfying formal requirements, early warning signals—minor defects, coordination mismatches, early signs of distress—are often normalised or overlooked because **"the standard has been met."** These signals rarely trigger alarms; instead, they accumulate quietly.

This shifts attention from performance to paperwork, from understanding behaviour to proving compliance. As regulatory frameworks become more detailed and complex, the risk increases that quality risks remain

hidden behind certificates, approvals, and reports. In such environments, standards may unintentionally provide a sense of closure, discouraging deeper inquiry into whether the building will actually perform as intended over time.

6. Way Forward: Reframing the Relationship

Standards and quality are not opposites, nor is one a subset of the other. Standards define the boundary of acceptability. Quality operates within it and often beyond that boundary. High-quality practice does not bypass standards; it anticipates what standards cannot fully specify. A better question than "Was the standard met?" is:

Was the system of decisions robust enough to deliver the intent behind the standard?

As regulatory frameworks expand, especially in rapidly developing contexts, the challenge is no longer the absence of standards but the assumption that standards alone ensure outcomes. A meaningful discourse on the built environment must therefore examine everyday practice—not just failures or iconic successes.

QUALITY begins where STANDARDS stop being read and start being lived.

TECH TRIVIA 1- Pioneers & Historical Foundations

1. **Abrams Law (1919):** A cornerstone of concrete technology, establishing that the strength of fully compacted concrete is inversely proportional to the water-cement ratio. This principle dictates that as the water content increases relative to cement, the porosity of the hardened paste rises, leading to a significant reduction in the ultimate compressive strength and durability of the structure.
2. **Dr. K. L. Rao:** The eminent Indian engineer whose Nagarjuna Sagar project, the world's largest and highest masonry dam, contributed significantly to the Green Revolution. Dubbed the "Father of Indian Irrigation," he later became a Union Minister and set rigorous standards for masonry dam construction. His professional thoughts were closely aligned with Gandhiji's principles of Swadeshi.
3. **Ar. Piloo Mody:** A pivotal figure who worked with Le Corbusier on town planning of Chandigarh and played a key role in passing the Architects Act (1972), which established the Council of Architecture (COA). His another notable work is the design of the prestressed concrete ECC HQ in Chennai, among other projects.

TECH TRIVIA 2 - Economic & Regulatory Impact

1. **Fire Safety Excellence:** CBRI Roorkee operates a specialized Fire Safety Engineering (FSE) laboratory dedicated to full-scale testing and performance assessment. Their recent research encompasses evacuation strategies for row buildings, advancements in passive fire protection, compartment fire studies, and the optimization of automatic sprinkler systems.
2. **The Economic Impact of Quality:** The Indian construction industry is critically burdened by the "Cost of Poor Quality" (non-conformance), which typically ranges from 15% to 40% of project costs. This figure accounts for internal failure costs, such as material waste and defective components, as well as external failure costs, including post-construction repairs, replacements, and legal claims.
3. **Precision Machine Foundations:** The IS-2974 series (Parts 1 to 5) provides the standard for designing foundations for high-speed and precision machinery. While the foundation's cost is relatively low—representing only 10% to 15% of the machine's value—its structural performance is vital to the operational efficiency and longevity of the equipment it supports.

TECH TRIVIA 3 - Modern Engineering Standards & Resilience

1. **Energy Consumption and Efficiency:** Buildings in India account for 30% to 35% of the nation's total electricity usage, with a residential-to-commercial consumption ratio of 3:1. Cooling requirements alone consume more than 50% of this energy. However, integrating energy-efficient designs as per the ECBC and Eco Niwas Samhita can reduce consumption by 30% to 45%. Rating systems like IGBC and GRIHA provide the structured frameworks necessary to achieve these substantial reductions.
2. **The Matunga Hoarding Disaster:** The collapse in Matunga on May 13, 2024, which resulted in 17 fatalities, serves as a grim case study in non-conformance. Investigations revealed multiple critical failures: the site was located on marshy land with inadequate foundation depth, and the oversized steel frame lacked the structural strength to withstand gusty winds. Furthermore, the structure exceeded BMC size limits and was erected on GRP land supported by a fraudulent structural stability certificate.
3. **Seismic Resilience through Base Isolation:** The Bhuj Government Hospital and Patna Police Command Centre are benchmark examples of public buildings utilizing base isolation techniques to remain fully operational following an earthquake. Following this standard of resilience, a new G+14 administrative building is currently under construction in Agartala, Tripura, employing the same advanced isolation technology, engineered to withstand earthquakes up to a magnitude of 8.8 on the Richter scale.

Call for Technical Papers

Built Environment (April–June, 2026 Issue)

Theme: Schedule & Time Management

The forthcoming issue of *Built Environment (BE)*, to be published in July, 2026, will focus on Schedule & Time Management in the built environment, inviting reflections on how planning, sequencing, coordination, and execution influence project delivery.

Submission Guidelines

- **Full Papers:** maximum 5 pages, including text, formatting, figures, and references. Papers should present clear arguments with practical relevance, linking planning, execution, and outcomes.
- **A3 Papers / Posters:** A3 size, 2 pages (centre spread, left–right flow). The paper should present one core idea as a continuous narrative from practice. Reproduction of codes, detailed procedures, and excessive data are not required.
- **Content Focus:** practical, observational, analytical, contributions, with emphasis on lessons from practice and real project experience.
- **Deadline:** June 15, 2026

Contributions are expected to stimulate reflection and enrich professional discourse on how time, decisions, and systems shape outcomes in the built environment.

Training Programme

Indian Buildings Congress is organizing a two-day intensive training programme on **"Advanced Waterproofing Technologies for Buildings"** for JEs / AEs / AEEs during 20-21 April, 2026, at IBC HQ, Sector VI R.K. Puram, New Delhi -110 022.

Suitable officers may be nominated for this valuable training by **15 April, 2026.**

Call for Technical Papers

Mid Term Session and National Seminar to be held in July, 2026

Theme: Services in High Rise Buildings

Indian Buildings Congress is organizing its Mid Term Session & Seminar on "Services in High Rise Buildings" sometime in July 2026. The seminar shall deal with important sub themes:

a) Green Building requirements of Building Services

b) Innovative MEP Services

c) Fire Services in High Rise Buildings

d) Automation and Control of maintenance services of buildings

An abstract of the paper not exceeding 200 words may please be sent to us on our email id indianbldgscongress@gmail.com & technical@ibc.org.in, so as to reach us by 30th April 2026. We expect the full paper to be received within 15 days of communication of acceptance of the abstract.

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