



IAStructE

news letter

Newsletter of the Indian Association of Structural Engineers
November 2019

Message from the President

Dear Readers,

How far our profession has come, and where it might be going, in the development of digital design tools, and what this might mean for structural engineers of the future? Do you believe the work of the structural engineer can ever be replaced by artificial intelligence? Well, as things stand today and the speed with which scientific and technological progress is being made, I am of the view that the day is not far, when almost all the technical work undertaken by structural engineers at every level will be overtaken by artificial intelligence, though the art of the structural engineer would always remain invincible.



When I was at university nearly 40 years ago, much of our course work involved learning the hard, number-crunching ways of analysing structures, while “design” lessons generally involved practising the use of codes and standards to select and detail structural elements. We used slide rule in our college days. When I started my professional career, most of the designs were done manually. I saw the paradigm shift in the practice of structural engineering starting from the demise of slide rule, transition from slide rule to pocket calculators to lap top and now to the advanced digital designs with the state-of-the-art artificial neural networking.

A major concern expressed by many of my senior colleagues and practising structural engineers is how the new breed of structural engineers can learn the fundamentals of structural engineering in a world, where much of the work traditionally undertaken by graduates can be supplanted by technology. How this digital revolution can allow a new kind of creative talent to emerge in the world of engineering. These are serious issues of concern to us.

Let me now update the readers with the progress made by us in last one month. The month of November has been a very busy for the IAStructE organisers. You will be happy to note that the international seminar on “Performance Based Design of Buildings & Bridges for Enhanced Seismic Resilience” organized by the association at New Delhi, during 8th and 9th of November 2019 was a grand success. The Seminar had technical contents of high order, good attendance and fairly participative sponsorship. It is the collective effort of the advisory committee, scientific committee and organising committee of this seminar which we have managed to evoke and which has resulted in this success. A report about this event is attached in this newsletter for benefit of all members.

I am also very happy to inform you all that we have successfully conducted a Workshop cum Brainstorming Session to finalize recommendations of a handbook on the provisions of IRC-6 2017 code, at New Delhi on 23rd November 2019. A brief report on this event is also given in the newsletter. We all look forward to publishing this commentary by end of March 2020.

I am extremely happy to note that the student chapter of CEPT University, Ahmedabad, under the leadership of Prof. Anal Sheth has organized a 2 days workshop on bridges during 23rd and 24th of November 2019. This is perhaps the first time in the history of IAStructE, when students’ chapter is so active. We look forward to many more such activities from the students’ chapter and we sincerely hope that other universities will emulate the good work done by CEPT University.

Our social media committee headed by Mr Bhavin Shah is also doing many activities. Apart from upgrading the website in a big way, the group is also planning to launch an on-line live quiz program. It is hoped that we will have the first live quiz program very soon.

Based on the feedback and the number of application for membership that we receive in secretariat, I am very pleased to inform you all that structural engineers are appreciating the initiatives taken by IAStructE and the association is gaining popularity. There is need for us to focus more to our regional centres in West Zone, East zone and South Zone, where we are not having any substantive activities for quite some time. Most of our activities are Delhi-centric and it is time to spread our wings.

With warm regards



(AlokBhowmick)

IAStructE Publication Committee		Newsletter Editorial Team	
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Call for articles

The Chairman and other members of the SED Editorial Board invite article contributions for the quarterly Journal of the Indian Association of Structural Engineers, the Structural Engineering Digest.

Write to iastructe@gmail.com for

Journal subscription | Article Submission | Sponsored Advertisement

Deadline for submission in next issue: 1st February 2020.

Submission template and ethics statement can be availed by emailing iastructe@gmail.com

The Editorial Board also invites the articles for the **April - June 2020 SED issue, which will be dedicated to the Theme “Structural Connection & Detailing”**. Sub themes are i) Concrete Structures; ii) Steel Structures; iii) Hybrid / Composite Structures; & iv) Post Installed Connections. **Interested Professionals may submit the Abstract by 15th January 2020 and full paper by 29th February 2020.**

Technical Lecture on Structural Health monitoring



A technical Lecture was delivered by Dr. Naveet Kaur, Scientist, Bridge Engineering and Structures Division, CSIR-Central Road Research Institute on the topic of “Structural Health Monitoring and Energy Harvesting using Piezoelectric materials” which was organized by IAStructE forum on 28th November 2019 at New Delhi.

International Seminar on “Performance Based Design of Buildings & Bridges for Enhanced Seismic Resilience”



Mr Mahendra Raj inaugurated the Seminar



Panel discussion in progress



Inaugural Session in progress



Technical Session 1



Technical Session 2



Technical Session 3



Technical Session 4



Technical Session 5



Technical Session 6



View of the audience

The Indian Association of Structural Engineers (IAStructE) organized two day International Seminar on “Performance Based Design of Buildings & Bridges for Enhanced Seismic Resilience” during 08 - 09 November 2019 at New Delhi. The seminar was inaugurated by the Chief Guest Shri Mahendra Raj, Founder President IAStructE. It was attended by 150 delegates from various parts of the country and overseas. The seminar was started with the Inaugural Session, followed by the six technical sessions along with the Panel discussion. The technical sessions were chaired by Dr Yogendra Singh, Dr Vasant Matsagar, Ms Alpa Sheth, Dr. Demin Feng, Mr Vipul Ahuja and Ms. Rupa Garai, respectively. Seminar Concluded with a panel discussion which was moderated by Sh. Manoj Mittal.

The presentations were made by the following eminent speakers invited from overseas and India, which were appreciated by all the participants. As Prof Amit Kanvinde had not been able to attend the event, his video recorded presentations were played during the seminar. However, Prof Kanvinde was connected live through phone for the question answer session.

- Mr. Vipul Ahuja, Vice President (N) IAStructE and CEO/Director, Ahuja Consultants Pvt. Ltd., New Delhi, India
- Prof. Amit Kanvinde, Professor and Chair Department of Civil and Environmental Engineering, University of California, Davis, CA, USA
- Ms. Rupa Garai, PE, SE, LEED AP BD+C, Associate Director, Skidmore, Owings & Merrill LLP San Francisco, CA, USA
- Mr Manish Gupta, Principal Consultant - Manish Consultants

- Prof. Dipti Ranjan Sahoo, Associate Professor, Dept of Civil Engineering Indian Institute of Technology Delhi
- Mr. Dhruv Rathi, Director - Shri Rathi Steel Group
- Dr. Yogendra Singh, Professor, Railway Bridge Chair, and Head, Earthquake Engg., IIT Roorkee, India
- Dr Anirudh Rao, Seismic Risk Engineer Global Earthquake Model Pavia, Italy
- Mr Pratik Sen, Senior Project Manager, Mageba Bridge Products Pvt Ltd
- Dr. Demin FENG, Chief Researcher, Fujita Corporation, Tokyo, Japan

The speakers delivered their lectures on the following topics:

- Overview of Performance Based design of Buildings & Bridges (Innovations for Economical Design, Retrofitting & Vibration Control—Base Isolation & Dampers)
- Hazard Quantification, Ground Motion Selection and Scaling
- Tall Building Guidelines/LA Tall building - Research review and application to Practice including Case Study with Viscous Dampers
- Insight from energy dissipation applications in India
- Nonlinear Response Simulation, Steel & Composite Steel/ concrete Buildings & Bridges
- Performance Based Design applications to Buckling Restrained Braces in the Indian Environment – including retrofit & new construction
- Performance Based Design Applications for typical Indian highrise Buildings with Shear Walls/ Flat-slabs and Bridges
- Risk and resilience of building & bridges separately and for regions-including applications for Vibration Control using PACT(FEMA),GEMS &REDi
- Performance Based Design Case Study for Reinforced concrete highrise shear wall structure - Tower 8, Transbay Block 9, 111 Main, San Francisco
- Non-linear analysis application for Structures with Vibration Control Devices- Base Isolators & Dampers Case Studies
- Future Direction of Indian Codes based on Performance Based Design including Vibration Controlled Devices

Ceremonial signing of MoU between IAStructE with SEANeP



On the occasion of this International Seminar the MoU with Structural Engineers Association of Nepal (SEANeP) was signed. MOU was signed by Mr. Alok Bhowmick, President IAStructE and Dr. Jagat Kumar Shrestha, President SEANeP. Mr Mukti Gautam, Vice President and Mr Bipin Kumar Gautam, Joint Secretary of SEANeP were also present.

Workshop-cum-Brain Storming Session on IRC:6-2017



The Governing Council of the Indian Association of Structural Engineers (IAStructE) have undertaken the task of preparing an explanatory commentary including illustrative worked examples for the IRC code on 'Loads and Load Combinations' (i.e. IRC:6-2017). The publication committee of IAStructE entrusted Mr AlokBhowmick (President, IAStructE and Managing Director, B&S Engineering Consultants Pvt. Ltd.) and Mr Rajiv Ahuja (Independent Consultant and GC member, IAStructE) to form the task group and spearhead this task. In line with this, a draft guideline alongwith worked out examples has been prepared by the authors, which were broadly circulated to all concerned for comments.

In view of the above the Workshop-cum-Brain Storming Session on IRC:6-2017 organized on 23rd November 2019 at PHD House, New Delhi. 41 delegates attended the workshop. The main focus of the workshop was to get to inputs and suggestions on the draft commentary, which will help to finalize the same. The following experts delivered the presentations on the various clauses of the Codes.

- Mr. AlokBhowmick, President IAStructE& MD B&S Engineering Consultants Pvt Ltd
- Dr LakshmyParameswaran, Fellow IAStructE and Chief Scientist (Bridges & Structures) CSIR-CRRI
- Mr Rajiv Ahuja, GC member IAStructE and Independent Consultant (Bridges & Highways)

The professionals related to the code may send their further comments, if any, by the end of December 2019.

Seminar on "Effective Use of Construction Chemicals for Durable and Sustainable Structures"



A Seminar on "Effective Use of Construction Chemicals for Durable and Sustainable Structures" was organized by BASF India Ltd with the support of Indian Association of Structural Engineers (IAStructE), on 22nd November 2019 at New Delhi. It was attended by about 120 participants. Mr Vipul Ahuja, Vice President (N) IAStructE briefed about the Association. Mr D. S. Ramachandra - RBSM (Performance Flooring) presented Introduction to Smarter and More Durable Flooring Solution and the technical Presentation on Effective Use of Construction Chemicals was given by MrSeshadri S. Srinivasaiah, Consultant, BASF India Ltd.

IAStructE student chapter activities



Weekend workshop on Bridge Engineering

The IAStructE student chapter organized a two day workshop on Bridge Engineering using MIDAS Civil. The workshop which was organized on 23rd and 24th November 2019 at CEPT University was attended sincerely by eight structural engineering students of universities in Ahmedabad. The workshop included manual solving of a typical bridge tutorial and equipped the participants to have some hands on training on MIDAS software for this purpose. The faculty of the course, Mr. Manan Shah, is a young structural engineer who works with Gammons Engineers and Contractors Pvt. Ltd at Mumbai. Positive feedback was received at the end of the session and based on demand of many participants who had registered but could not attend; the same workshop is being planned in January 2020.

Such workshops are short and abridged versions of professional courses and internships post structural engineering; and intended to provide a window of exposure to like-minded structural engineering students and fresh graduates (less than 2 years of experience) to have a feel of the specializations in Structural engineering that they may have aptitude for. These workshops also enable the young graduates to have some confidence and maturity when they are placed in professional practice. The workshops are open for all who have either enrolled or graduated with a structural engineering degree.

Other upcoming event(s):

December 2019:

Heritage walk in Ahmedabad old city: Awareness of structural needs of heritage structures

January 2020:

Weekend workshop on Analysis and Design of High rise buildings

February 2020:

Bridge the gap competition

A weekend workshop on Analysis and design of high rise building is being organized by the student chapter. The workshop of 16 sessions (8 hours per session) starting January 4th, 2020 will be held every Saturday on the campus. The workshop will be conducted by Er. Kirankumar Joshi, who is an associate with Burohappold Engineering. At the end of the workshop, it is expected that participants will be able to model, analyse and design various elements of a high rise building.

More details of upcoming events and workshops by IAStructE student chapter at CEPT University will be posted by the student committee on their facebook page, <https://www.facebook.com/iastructcept/>. For personal enquiry, contact padia.jaimin.bt15@cept.ac.in (committee member of student chapter)

Other news / short article: Miami Bridge Collapse

National Transportation Safety Board outlines probable cause of fatal Miami bridge collapse



The US national transportation safety board (NTSB) has released a report saying the probable cause of the collapse of a pedestrian bridge at Florida international university was load and capacity calculation errors by project designer Figg bridge engineers. The accident occurred in March 2018, when a 174ft, 950-ton bridge fell 18 feet onto eight cars, killing six and injuring 10.

The NTSB says US infrastructure group Louis Berger's "inadequate peer review" contributed to the collapse, as it failed to detect calculation errors made by Figg in its design of the main span truss member 11/12 nodal region and connection to the bridge deck. Louis Berger was not qualified by the Florida department of transportation to undertake an independent peer review.



Figg's engineer of record contributed to the collapse as it failed to identify the significance of structural cracking observed in this node before the collapse, and also failed to obtain an independent peer review of the remedial plan to address the cracking.

The NTSB also cited a failure to cease bridge work and close SW 8th street to protect public safety by Figg, MCM, Bolton, Perez and Associates Consulting Engineers, Fiu and the Florida Department of Transportation, which contributed to the severity of the collapse.

The NTSB concluded that steel and concrete materials used in bridge construction were not a factor in its collapse, and a hydraulic jack used at the time of collapse was operating as expected.

Robert Sumwalt, the NTSB's chairman, said: "errors in bridge design, inadequate peer review and poor engineering judgment led to the collapse of this bridge."

"The failure of all concerned parties to recognise and take action on the threat to public safety presented by the significant observed bridge structure distress prior to the collapse led to the tragic loss of life in this preventable accident."

The NTSB released an earlier report into the collapse in November 2018, and Figg bridge engineers were previously criticised by the US Department of Labour's Occupational Safety and Health Administration in June 2019.

Source: <http://www.globalconstructionreview.com/news/national-transportation-safety-board-outlines-prob/>

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About IAStructE

The Indian Association of Structural Engineers (IAStructE) is the national apex body of structural engineers in India established with the objective to cater to the overall professional needs of structural engineers. The association has become the source of expertise and information concerning all issues that involve structural engineering and public safety within the built environment. It has no commercial aim or objective. IAStructE is purely a professional learned society with the prime objective of supporting and protecting the profession of structural engineering by upholding professional standards and acting as a mouthpiece for structural engineers. IAStructE endeavors to ensure that its members develop the necessary skill in structural engineering and work to the highest standards by maintaining a commitment to professional ethics and standards within structural engineering. IAStructE strives for continued technical excellence; advancing safety and innovation across the built environment. It also strives to make available to the Government, Public Sector and Private Sector - a credible source of well qualified and experienced Structural Engineers. A nationwide database of Structural Engineers has been compiled and is being constantly updated. IAStructE undertakes a broad range of technical activities which are aimed at information sharing and capacity building. The association provides opportunity for all the members to develop various skills in structural engineering and helps members to be at the forefront of structural engineering practice. Towards achievement of its aims and objectives, IAStructE is engaged in organizing the following: CPD Courses for Professionals at all levels Refresher Courses for Fresh Graduate Engineers, Student's orientation program, Seminars/Workshops, Technical Lectures by Experts, Technical Discussions on Contentious Issues. IAStructE is currently operating from four regional centers. These regional centers located in the Eastern, Western, Northern and Southern parts of the country effectively cater to the professional needs of members residing/practicing all over the country.

How to become a member?

Membership form and details are available at <http://www.iastructe.co.in/membership-form.html>
For membership information and other details contact the Indian Association of Structural Engineers Secretariat.

Membership Benefits

Membership of IAStructE is a sought after professional accreditation. Your membership of IAStructE can help you enhance your intellectual, academic, technical and professional status. It provides inter connectivity to the fellow professionals and the fraternity. Some of the benefits of membership is provided below:

- Complimentary magazine subscription: All members (except Student Members) receive a complimentary subscription to the Institution's flagship publication 'Structural Engineering Digest' (SED). Published quarterly, each issue allows members to remain connected to the association through the provision of technical papers, Industry and Institution News, Featured articles, Professional Guidance on everyday matters affecting the practicing structural engineers. [Released]
- Access to all Technical Lectures, organized every month, at no charge
- Access to Technical Discussions held regularly
- Access to the association's library (Including e-library)
- Discounts in attending Seminars and Workshops organized by the association
- Full on-line access to the current volume and entire e-archive of journal "Structural Engineering Digest (SED)", Refresher Course Materials, Technical Lectures E-Newsletters and other Technical Resources of the Association.
- Opportunity to network with professional structural engineers of eminence and to meet potential employers in the association.
- Opportunities for professional development

IAStructE Secretariat

Indian Association of Structural Engineers
K-69A , Basement, Kalkaji, New Delhi 110019
Tel: (011) 45794829 ; Email: iastructe@gmail.com; Website: www.iastructe.co.in
Face book: <https://www.facebook.com/IAStructE-1702347580065625/>