



Message from the President



Dear Members,

I hope you, your family and your friends are staying safe despite the upsurge of COVID cases in the country. As you are aware, the pandemic is continuing its unprecedented surge. As the country opens up to run business as usual in the still COVID-19 racked and ravaged world, we need to take little time out of our routine, to think about what we treasured the most in this disruption. And what we want to keep, and what we want to change. This is how we will re-work the future. We need to build resilience for the next inevitable shock. This is where our mindfulness will be needed.

Starting 1st week of September, IAStructE has commenced conducting a unique and comprehensive on-line course on Cable Stayed Bridges, being taught by Professor Holger Svensson, a renowned and eminent bridge engineer and currently a professor in Dresden University, Germany. This 30 lecture course, which is spread over two months (twice a week, 2 lectures per day), has already generated a huge interest amongst the participants. The inaugural lecture of this series, on 5th September 2020 was addressed by Professor Holger Svensson himself. He gave a fascinating and inspirational lecture sharing his 40 years of professional journey and his experience of designing and constructing Cable Stayed Bridges. The live panel discussion after listening to the recorded lectures, with interesting and informative input from expert immensely adds value to the teachings of Professor Holger Svensson. More than 330 participants have registered for this course and the feedback we are receiving from the participants are really encouraging. This clearly indicates the immense benefits of conducting on-line professional development courses, where participants from different states, different countries can participate.

Before I close, I wish you all a very happy festival season in the coming month. I believe the month of October will bring us more love, happiness, good health prosperity and blessings.

With best wishes & Warm Regards

ALOK BHOWMICK

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THE CURIOUS CASE OF RECENT BRIDGE COLLAPSE & THE RESPONSE OF NHAI

by

Sh. Manoj Kumar Mittal

Past President – IAStructE &

Chairman – Publication Committee, IAStructE



In the last newsletter of August 2020 an article titled "Are we learning from past structural failures?" was published by IAStructE. Author highlighted number of recent cases of failures with precast segmental construction and highlighted the common deficiencies found in most of these failures. He also appealed all structural engineers to be more cautious in design and not to compromise on quality of their works.

As a sequel to the last article, I wish to highlight another important aspect of structural failures. That is the witch hunting & knee jerk response by the Authorities post-failure of any structure. It is often seen that the Authorities take a knee-jerk punitive and coercive action against the stakeholders selectively. This happens to only those structures which has attracted the attention of the media. Media attention is unavoidable when there are large number of casualties involved in the collapse or the structure is located in urban habitat.

Take the case of recent collapse of Precast Segmental PSC twin cell Spine Beam of Flyover on the Rajiv Chowk-Badshahpur project, Sohna Road, Gurgaon as an example. The collapse happened in the heart of Gurgaon and on a Saturday night (22nd August 2020), in full glare of media. The exact cause of the collapse is not known yet but the finger has already been pointed in several directions by the Authorities, namely the Concessionaire, the Consultants and the Proof Consultants. Unprecedented urgency is shown by the Authorities in blaming all the agencies involved, without even completing the preliminary investigation. It is interesting to note that there was one more, similar failure that took place on the same road, which happened outside the media glare and that failures did not get the same harsh treatment from the Authorities as Rajiv Chowk-Badshahpur project at Sohna Road. For the benefit of readers, let me share the various steps that is taken so far by the National Highway Authorities of India (NHAI) after the failure of the precast segmental spine beam at Sohna Road, Gurgaon:

- a. **Constituted an expert committee to investigate into the collapse** (3 days after the accident). Not sure if any time limit is fixed for the constituted committee for the investigation.
- b. **Issued a Policy Circular giving the Standard Operating Procedure (SOP) for dealing with accidents / structural failures** so as to have a responsive post-accident mechanism in place. It was Issued on 28th August 2020 i.e. after the above-mentioned incident happened.

It is good to have thorough & quick investigation but the SOP in this circular sets an unrealistic time limit of only 3 days for preliminary report and 7 days for the final report of the expert committee, which should be complete with technical analysis, identifying the reasons for failure, fixing the responsibility for the failure.

While the appointment of an Expert Committee for forensic investigation of failure is a welcome idea, the directive given by NHAH that the Committee should give the interim report in three days and final report in seven days, is unrealistic and gives an impression that NHAH is not serious to get into the root cause of the problem. In case of a structural collapse, whether during or after the construction, the Committee is supposed to go through volumes of design calculations, detailed drawings, shop and fabrication drawings, design and drawings of form works and temporary structures, details of various operations involved in execution of the projects like precasting, prestressing etc, quality of material used as well as the quality of finished product, mainly the concrete. For the collapsed part of the structure the Committee will have to get the independent non-destructive tests done and go for taking cores of concrete, preparing samples and testing those samples and interpretation of the test results thereafter. All of this is a time-consuming affair.

- c. **Issued another Policy Circular directing all ROs and PDs of NHAH** to ensure that all constructed and under-construction structures & their approaches are examined by the concerned PDs and AEs/IEs in respective jurisdictions. It was issued on 9th September 2020 i.e. again after this incident happened.

The deadline given to ROs / PDs, to verify and certify all such structures having examined project wise is given as 21st September 2020. Once again, it is clear from this time lines set by the authority, that the intent behind giving such deadlines are not really concerns for safety of the structure but to fix the shoulder of responsibility in case any failure occurs in future. This is indeed unfortunate and without much thinking. I am not sure if verification of projects has been completed or again time limit has been extended on adhoc basis?

- d. **Disallowed all the agencies involved in the project temporarily to take up any further works of NHAH till the investigations comes to an end.**

Perhaps this is done to appease the media and to divert the glare and attention of the media from Authorities own misdemeanours. NHAH needs to appreciate that debarring an entity (design consultant/proof consultant/ concessionaire) is a very serious action having far reaching consequences for the entity, even if the debarment is for a short period. Such an action becomes a stigma on the entity's reputation for several years to come, besides diminishing its chances to procure business in future. It may not be out of place to mention that such an action jeopardises the future of the families of the employees of entity also. Suffice to say that a decision to debar any entity, even for a short period, has to be taken very judicially.

The rush to attribute blame is evident now. This happens unfortunately each time such a tragedy occurs. Many time consultants have been arrested without any investigation. This can certainly cloud the real issue of concern. Trying to find fault in an agency or a group of agencies for a collapse might falsely lead us to think that this is only a problem with a specific project, which is resolved by defaming these agencies. Certainly in each instance there are specific circumstances that lead to a collapse, but these events cannot be seen as one-offs. The trend clearly shows that there are increasing number of such failures that is taking place around us. The problem is to be seen at a macro level. Authorities need to address these issues holistically, involving the stakeholders rather than alienating them by witch hunting tactics. Independent Engineers and officials of Authorities who accord approvals should also be investigated. Are they not responsible for such acts? After detailed investigation cause(s) of failures and lessons learnt must be documented and made available to engineering fraternity.

Call for Papers for THEME issue of SED Journal

The Governing Body of SED Editorial Board has decided to bring out theme issues of the journal on following themes. A GUEST EDITOR is associated with each theme issue. Details are as under:

October – December 2020 issue: **Theme: Professional Issues confronting Structural Engineering**
Guest Editor- Sh. Manoj Mittal

January – March 2021 issue: **Theme: Bridge Foundations**
Guest Editor- Mr. Rajiv Ahuja

April - June 2021 issue: **Theme: Machine Foundation**
Guest Editor-Dr K G Bhatia

These issues of the DIGEST shall be published in E-Book Format. The governing body invites article contributions for these forthcoming issues of the Structural Engineering Digest.

Articles are invited from i) Members of IASE; ii) Specialists in the field even though they are not members of IASE.

Interested authors/ contributors may kindly mail to iastructe@gmail.com regarding i) Broad guidelines on areas of coverage; ii) size of the article; iii) format of paper submission; iv) the dates for submission of the abstract and Full paper.

As per the laid down procedures all the papers (except invited papers) shall be sent to the referee for review and the comments will be informed to the authors for incorporating the same.

IAStructE National Awards 2020 – CALL FOR NOMINATIONS

IAStructE is conducting the National Awards Competition for the year 2020 and inviting the nominations for the following categories of the Awards.

1. **OUTSTANDING STRUCTURE OF THE YEAR (Two Awards)**

- i) Buildings including, residential & commercial buildings, hospitals, schools etc.,
- ii) Other structures such as Bridges; Large span space structures for sports, exhibitions etc.; industrial structures; monuments

2. **PROMISING YOUNG STRUCTURAL ENGINEER AWARD**

3. **OUTSTANDING STRUCTURAL ENGINEER OF THE YEAR AWARD**

4. **OUTSTANDING WOMAN STRUCTURAL ENGINEER AWARD**

5. **BEST M.TECH THESIS IN STRUCTURAL ENGINEERING AWARD**

Last date for receipt of nominations has been extended to 30th November 2020 and the last date for submitting the NOTICE OF INTENT to enter for the OUTSTANDING STRUCTURE AWARD extended to 31st October 2020.

The nomination forms for applying in any of the above categories can be downloaded through the following link <http://iastructe.co.in/iastructe-national-awards-2020.php>. Selection Criteria and Instructions and terms are specified in the nomination forms.

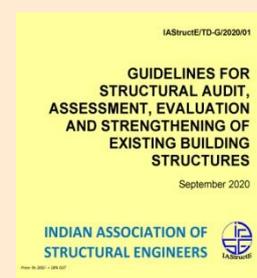
IAStructE Published Documents

As you are aware that IAStructE is undertaking the task of preparing the professional documents and the commentary of various BIS and IRC codes, so that the practicing structural engineers can understand the code better and comply with the requirements of the code with confidence. Under this activity the IAStructE has published the following documents:

1. Clause wise Commentary on IS: 13920 : This document has been finalised after wide ranging consultations & debate amongst civil & structural engineering fraternity. A workshop was also organised to discuss and debate various comments received from engineers. The Commentary has already been sent to the Bureau of Indian Standards for further action. The commentary is available on www.iastructe.co.in under IAStructE Professional Documents. IAStructE member can access this document after login.

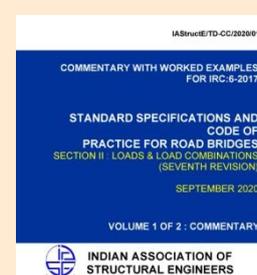


2. Guidelines for Structural Audit, Assessment, Evaluation and Strengthening of Existing buildings Structures : IAStructE has published this document to guide structural engineers in proper assessment of building structures before issuing structural stability certificate. This guideline may be used by IAStructE members, all other structural engineers, house owners, housing society welfare associations, clients and corporation engineers for structural audit of the private and public building structures. The Guideline focuses on the urgent need to strengthen risk resilience of buildings from any kind of risks due to earthquake and other hazards. It is hoped that this document will be useful to ensure that all structures across the country remain safe from any kind of disaster risk. It's a priced document and hence not freely downloadable. However one can read the document by following the link. <http://www.iastructe.co.in/guidelines-for-structural-audit/>

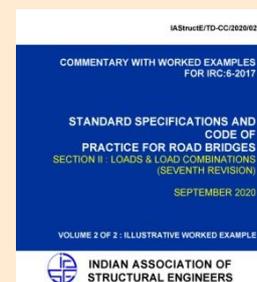


The price of this e-document is Rs 236/- (Rs 200 + Rs 36/- as 18% GST). Interested professionals who wish to obtain the soft version of the Guideline in pdf format, kindly register with the following link to obtain this Guideline in pdf format. Registration Link: <http://iastructe.co.in/guidelines-for-structural-audit.php>

3. Commentary with Worked Examples for IRC:6-2017 : IAStructE is pleased to announce publication of Commentary with Worked Examples for IRC:6-2017, the IRC code for Loads & Load Combinations for design of Highway Bridges. The commentary and the Illustrative worked examples are printed in two separate volumes. Volume-1 of 2 pertains to the Commentary while Volume-2 of 2 pertains to Illustrative Worked Examples, which has 48 worked examples demonstrating application of various codal clauses.



These two documents will be available for Sale with effect from 15th October 2020 @ Rs 1200/- + 18% GST for Volume 1, and @ Rs 800/- + 18% GST for Volume II. Members of IAStructE and IRC will be entitled for a discount of 10% on this amount. Interested professionals who wish to purchase the commentary may kindly register with the following link : <http://iastructe.co.in/new-iastructe-publication.php>.



Some modifications in the code have also been suggested, which have already been sent to the Indian Road Congress for consideration.



Panel Discussion **Structural Engineering Practice in India : Introspection & Way Forward**

PANELISTS



Ms. Alpa Sheth
MD, VMS Consultants Pvt. Ltd, Mumbai &
Managing Trustee,
Structural Engineering Forum of India



Prof. Sudhir Jain
Founder Director, IIT Gandhinagar &
Founder member, IAStructE



Prof. Mahesh Tandon
Past President & GC member IAStructE &
MD, Tandon Consultants Pvt Ltd, New Delhi

ANCHOR & MODERATOR



Mr. Manoj Mittal
Past President & GC member-IAStructE
Civil / Structural Engineering Consultant
Shelter Consulting Engineers, Noida

Panel discussion on “Structural Engineering Practice in India: Introspection & way forward” was organised on 25th September. Eminent Panellists were Dr. Sudhir Jain - Director IIT Gandhinagar, Prof Mahesh Tandon -MD TCPL & Ms Alpa Sheth- VMS Consultants P Ltd. The panel Discussion was moderated by Mr. Manoj Mittal Past President & GC member IAStructE. It started at 5 PM and concluded at 7.15 PM. Various issues related to civil/structural engineering-education, training & employability of graduates, qualification & competence standards for professional practice, Regulation of engineering profession were discussed in great detail apart from various other issues and audience questions. Entire discussion was quite free, frank, lively and highly interactive. Following emerged from discussion:

- Education system in India needs overhaul. It does not produce graduates with critical and innovative thinking, they lack in learning skill, attitude & values. It is not possible to teach structural engineering in greater detail as Civil engineering spectrum is extremely broad. It is advisable to do master’s degree. Industry must train fresh graduates appropriately.
- There was consensus that a competency-based exam is necessary for structural engineers to practice. It was felt that professional associations like IAStructE must take lead in it.
- Status of Engineers bill was noted but it was felt that present draft is highly inadequate to address the issues of profession. There is still no unanimity amongst engineering professional bodies. Competence based exam is also not proposed in the draft. If everything goes right it may reach parliament in next session.
- Award of work based on L1 is not conducive for profession. We need to impress upon government to follow WB & ADB processes for awarding the work to consultants.
- Proof checking & vetting of designs by IITs and other engineering institution should be discouraged and established structural consultants must be appointed for the same.
- Current trend of taking punitive actions and arrests of consultants without any investigation in case of structural failures is a serious matter and we need to take it up with the government. It was expressed and agreed that such a situation may further discourage young talent to join profession.
- Structural engineering firms must be more innovative, futuristic & vibrant. Its good to work as prime consultant and now consolidation is also happening.
- Webinars & various courses being organised by IAStructE were appreciated by all panellists. It was felt that this is best way of capacity building.

Audience were also concerned with inexperienced faculty and mushrooming of engineering colleges. They desired that IAStructE must organise more such panel discussions.

The recorded Panel Discussion can be seen at the following link:
<https://youtu.be/wdyNAAweGjc>

On Going Event

IAStructE is organizing an Online Lecture Series on “**Cable Stayed Bridges**”, which was launched on 05 September 2020. The lectures will continue till 17 October 2020 through Zoom meeting App. In which the recorded Lectures of renowned German Bridge Specialist, Prof. Dipl. –Ing. Holger Svensson, author of a famous book titled “Cable Stayed Bridges” are being presented. The lectures are being organized on every Saturday and Wednesday between 04:00 PM to 06:30 PM (IST). Each lecture will be followed by Panel Discussions by experts and Q&A interactions. Dr. Harshavardhan Subbarao, GC member IAStructE & CMD Construma Consultancy is the Moderator of the Lecture Series

The Inaugural Lecture was organized on 05 September 2020, where Prof. Holger Svensson shared his professional journey and personal experience with Cable Stayed Bridges. This lecture was recorded by IAStructE, which can be seen through the following link: https://youtu.be/B3JxOPw_z6M

Forthcoming Event

IAStructE is organizing a Webinar on “**The Tale of MORNADI Bridge Collapse, Italy**”, by **Mr. Alok Bhowmick**, President IAStructE and MD, B&S Engineering Consultants Pvt Ltd on **15th October 2020** between **04:00 PM to 06:00 PM** through Zoom webinar. The Webinar will be Moderated by **Prof. Mahesh Tandon**, Past President & GC member IAStructE & MD, Tandon Consultants Pvt Ltd, New Delhi. Interested members may register with the following link: https://us02web.zoom.us/webinar/register/WN_WIJ8OwqxQ6SoAlGIu6udGg

About IAStructE

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 centres 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

IAStructE 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

Indian Association of Structural Engineers

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