



## Message from the President



Dear Members,

As you all know, the term of this Governing Council of IAStructE is coming to an end and election for next Governing Council is in the offing. I had the very special honour to be our associations President, particularly at a time when the rate of change in the world order was unprecedented. Our GC had to face and manage these unprecedented changes and come out with innovative ideas to put a new structure into place. I am quite satisfied with the way we have faced the new reality.

With new set of people in GC, it will be one more opportunity to look into the future of the association afresh. We need to ponder as to how we can sustain in this new challenge of COVID-19. I will not be any more at the top of the pyramid, to take care of this, as the term of this GC ends in 1st quarter of 2021, and as per the current practice, Past-President cannot be re-elected. This is perfectly fine with me, since it is good to always have a fresh look and approach.

As the IAStructE GC election is in corner, I appeal to all committed members of this association, having leadership qualities, to come forward and take advantage of this opportunity to nominate yourself for GC election. You could perhaps initiate re-orientations that you always wanted to see for IAStructE or put into place completely new activities you have always been missing in our appreciated association.

We are very much looking forward to receiving many exciting nominations!

Before I close, I wish you all Merry Christmas and a very happy and prosperous new year 2021 ahead. The next newsletter is likely to reach you in next calendar year only.

Till then, my Best Wishes & Warm Regards

ALOK BHOWMICK

### IAStructE Publication Committee

Chairman : Er. Manoj Mittal  
Members : Er. Alok Bhowmick  
Er. (Dr) S Chatterjee  
Er. (Dr) Abhay Gupta  
Er. A K Sharma  
Prof. R Pradeep Kumar  
Er. Rajiv Ahuja  
Er. Amandeep Garg  
Er. (Ms) Anal Sheth

### Newsletter Editorial Team

Chief Editor : Er. (Ms) Anal Sheth  
Members : Er. Manoj Mittal  
Er. Bhavin Shah  
Er. Rajiv Ahuja  
Er. Maulesh Shah

## Newsletter Contents

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## Call for Papers for THEME based issues of SED Journal

SED Editorial Board invites article contributions for the forthcoming issues of the Structural Engineering Digest on the following Themes, which shall be published in E-Book Format. A GUEST EDITOR is associated with each theme issue. Details are as under:

### October – December 2020 issue; Guest Editor- Sh. Manoj Mittal

#### Theme: Professional Issues confronting Structural Engineering

- Sub themes:**
- Civil /structural engineering education & training
  - Qualification/competence standards for professional practice
  - Capacity building of professional Engineers
  - Noncompliance of Codes & standards
  - Regulation of engineering profession
  - Selection & Appointment of Consultants
  - Licensing & registration system
  - Ethics & Code of conduct
  - Professional fee & unhealthy competition
  - Structural Engineers as lead consultants

This issue shall be published by December end. You may send the full paper any of the above sub themes or related area along with your photograph and brief resume latest by December 7, 2020.

### January – March 2021 issue; Guest Editor- Mr. Rajiv Ahuja

#### Theme: Bridge Foundations

- Sub themes:**
- Deep Well and Pile Foundations for river bridges
  - Foundations for flyovers and underpasses
  - Seismic Analysis and Design of foundations
  - Open Foundations in Soft clays with ground improvement
  - Liquefaction affecting foundation design
  - Soil Foundation Interaction
  - Load Testing of foundations
  - Construction challenges in bridge foundations

The abstract on any of the above sub themes or related area along with your photograph and brief resume may be sent latest by 10<sup>th</sup> December 2020 and full paper by the end of December 2020.

### April - June 2021 issue: Guest Editor-Dr K G Bhatia

#### Theme: Machine Foundation

The abstract along with your photograph and brief resume may be sent by the end of December 2020 and full paper by the end of February 2021.

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](mailto: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. Papers shall be published after peer review & approval of SED editorial board.

## IAStructE National Awards 2020

The last date for receiving the nominations for IAStructE National Awards 2020 Competition for the following category has been over.

### 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**

The Jury are now in the process of scrutinizing the entries received.

## Webinars Conducted

1. The webinar series titled "**Lecture Series on Cable-Stayed Bridges**" based upon the 30 recorded lectures of Prof. Dipl. -Ing. Holger Svensson, a renowned and eminent Bridge Engineer, author of a famous book titled '**Cable-Stayed Bridges**' organized during 05 September 2020 to 21<sup>st</sup> October 2020.

As a token of appreciation and gratitude, on behalf of IAStructE a Statue of Nataraja was sent to Prof Holger Svensson at his residence address in Germany.



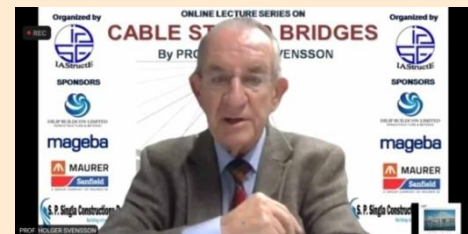
Thanks message received from Prof Holger Svensson is given below:

*"I have just received your beautiful Nataraja sculpture. It had to go through German customs and ,therefore, took some more time to reach me.*

*Thank you and your colleagues very much for this outstanding example of Indian culture. It will occupy a place of honor among my various professional prizes and mementos.*

*Please accept my deep appreciation for this outstanding gift.*

*Prof. Dipl.-Ing. Holger Svensson, University of Dresden"*



2. IAStructE in association with Windtech Consultants, Australia is organizing the Webinar series on "Wind Tunnel Testing Techniques".

The first Webinar in the series was organized on "Advanced Wind Tunnel Testing Techniques: Part 1 - Bridges" on 28th November 2020 by Dr Nicholas Truong, Director, Windtech Consultants. Prof Mahesh Tandon, Past President and GC member IAStructE was the Moderator.

Advanced Wind Tunnel Testing Techniques (Part 1: Bridges)  
Indian Association of Structural Engineers - Seminar 2020

Coverage

- 1 Introduction
- 2 Wind Effects on Bridges
- 3 Static Section Test
- 4 Dynamic Section Test
- 5 Full Aero-elastic Test
- 6 Long Term Monitoring

Dr Nicholas Truong  
Director  
nicholas@windtechglobal.com

Dr Matthew Vallis  
Associate Director

WINDTECH  
www.windtechconsult.com © Windtech Consultants Pty Ltd

The second Webinar in the series is being organized on "**Advanced Wind Tunnel Testing Techniques: Part 2-Tall Buildings**" on **19th December 2020**. The speaker is Mr. Tony Rofail, Director, Windtech Consultants. Er. Dr. Abhay Gupta, GC member IAStructE and Director Skeleton Consultants Pvt Ltd will be Moderator. Registration Link: <https://windtechconsult.com/events/advanced-wind-tunnel-testing-techniques-part-2-tall-buildings/>

## IAStructE New Publications

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. 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.

The documents are now available for sale @ Rs 1200/- for Volume 1, and @ Rs 800/- 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 or contact IAStructE Secretariat at [iastructe@gmail.com](mailto:iastructe@gmail.com):

Registration link: <http://iastructe.co.in/new-iastructe-publication.php>.

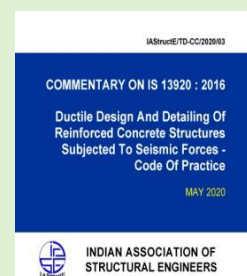
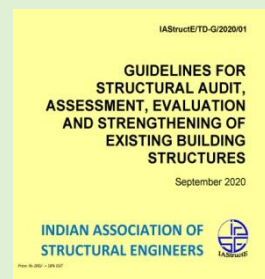
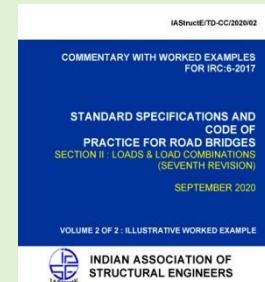
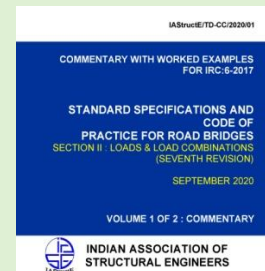
## 2. Guidelines for Structural Audit, Assessment, Evaluation and Strengthening of Existing buildings Structures

: 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 200/-. Interested professionals who wish to obtain the soft version of the Guideline in pdf format, may register with the following link. Registration Link: <http://iastructe.co.in/guidelines-for-structural-audit.php>

**3. 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](http://www.iastructe.co.in) under IAStructE Professional Documents. IAStructE member can access this document after login.

**4. Clause wise Commentary on IS: 1893 Part 1**: This document has been finalized with the contribution of many members of the association. The Commentary has already been sent to the Bureau of Indian Standards for further action. The commentary is available on [www.iastructe.co.in](http://www.iastructe.co.in) under IAStructE Professional Documents. IAStructE member can access this document after login.



## Is Your Apartment Really Earthquake Resistant? HERE IS WHAT YOU SHOULD KNOW

*(The article below is a summary of interview done by Ms Vandana Ramnani for Moneycontrol news portal)*

by

**Er. Dr. Abhay Gupta**

*GC member – IAStructE &*

*Director, Skeleton Consultants Pvt Ltd*



Ajay Sharma, an IT professional, finally found his dream house. It met the requirements of his family, the location was perfect and the biggest of it all—it was within his budget, thanks to the discounts being offered. But then the fine print in the developer’s brochure that said the project was earthquake-resistant caught his eye.

Noida, like most of the National Capital Region, is a high-damage risk earthquake zone falling in seismic zone 4. Sharma had to look at quake safety as the apartment was on the 22nd floor. But the problem for the IT professional and millions like him is that India doesn’t have a definition of earthquake-resistant structure even though building collapse and earthquakes are reported regularly. The building design codes and the Real Estate (Regulation and Development) Act, 2016, are silent on it.

In India, most high-rises are built as per local bylaws and the National Building Code that is considered safe to withstand earthquakes. As most of India is located in high seismic zones, it is important for builders and authorities to ensure that construction prescribes to earthquake resistant design standards, say experts.

Those who claim to build and sell quake-resistant buildings simply mean they have followed standard regulations.

Buildings are expected not to collapse. The building should not have a “pancake collapse”, which means even if “contents” are destroyed, the structure should remain intact so that the building can be restored rather being demolished. This will enable the occupants of the building to survive. It is called “collapse prevention” in design term and that is the nearest that India comes to when it comes to earthquake resistance.

In India, buildings are sold, leased and rented by just mentioning that the structure is earthquake resistant, without specifying the “category of resistance, i.e., fully operational, immediate occupancy, life safety or collapse prevention”, expert said.

The difference between the four categories is so wide that keeping a customer in the dark is a blatant breach of a consumer’s right to be informed and to consumer education.

“There should be strict rules that all buildings, both new and old should have engraved metal plates of size not less than one foot by two feet, mentioning that the building is earthquake resistant, collapse prevention or any other category or ‘earthquake-resistance unknown’,”.

Having said that, there is no substitute for due diligence, buyers should ask questions about structural safety before buying or renting and ensure the earthquake-safety promise is more than a promotion gimmick.

Before booking a flat, a buyer should find out who the Structural Designer and the Soil consultant of the project is, instead of being content only with knowing who the Architect is. “An architect is not responsible for the Safety, durability and the strength of the structure,” explains Er. Dr. Abhay Gupta, Director at Skeleton Consultants Pvt Ltd NOIDA.

The first question that the buyer could pose a developer is to ask him about the soil report of the building site that has been chosen for construction or is about to be constructed. The strength of the building’s foundation is best gauged through a soil investigation report.

It has often been observed that builders undertaking small projects do not undertake the soil investigation exercise as they consider it to be too expensive. A developer in Noida was found to have utilised the soil investigation report of a building in the same sector though the project he is constructing is 16 floors with 2 lac sft area.

"Soil investigation for a small project generally costs around Rs 50,000 to Rs 10 lakh for a large apartment block but the test costs less than 1 percent of the entire project cost. It provides details of the ground water table, the foundation depth among other things," explains Dr Gupta. In case the developer is able to produce the soil investigation report, a buyer can rest assured that the builder has more or less adhered to the structural norms.

There should be a provision under the law that with every property that is being sold a set of structural drawings should be submitted along with the sale deed at the registration office. Currently, only floor plans are required and not structural drawings.

Also, there should be a name plate displayed at the entrance of every project that clearly state the names of the architect and the structural designer and the IS code under which the building has been designed. Advertisements that claim that the project is earthquake resistant should also mention the name of the structural designer, the IS code number and declare that the building has been designed for earthquake zone 4, explains Dr. Gupta.

As is the case with other products, construction too follows IS codes. Here's a sample. IS456 is the code for design of concrete buildings; IS800 is for design of steel buildings; IS1893 is for earthquake resistant design; IS13920 is for design for ductility in structures; IS16700 is for safety in construction of tall buildings.

The second step is to check for construction quality for which a buyer or a group of buyers can get together to hire a structural expert. This can cost around Rs 25,000 for a single buyer to around Rs 2 lakh for the entire building. Generally, concrete buildings have a life of 50 years but considering the quality of materials used these days, the buildings start deteriorating within 15 to 25 years.

It is because of this reason that there should be a rule under RERA that stipulates that every group housing project should be examined for structural health initially after 10 years and then subsequently after every five years, says Gupta.

The third test is to do with the minimum column dimension of a building which should ideally be 300 mm or 1 ft. Buyers should also make sure that floating columns have not been used. What this means is that often there are large column free areas constructed on the lower floors and another set of columns erected from the upper floors which do not go upto foundation level. Column design should be continuous and not floating, explains Dr. Gupta.

Fourth point is about the Planning which too should be symmetrical and buyers should ensure that they are not buying into projects that are 'architectural fantasies' – large cut outs, buildings with elongated rectangles or protruding features.

The fifth point to be considered, especially if you are planning to buy into a higher floor is to ensure that IS code 16700 has been adhered to. This is the code for safety and construction of tall buildings above 50 m in height.

If you are buying into an apartment which is located above the 20th floor, make sure you get the building movement tested. The wind force is extremely important and building movement associated with it, especially in the event of an earthquake/wind. During an earthquake a building undergoes lateral movement and that is the reason why often loose furniture is not recommended for higher floors. Buyers should also check about the quality of windows used and the first test is to ensure that there is no humming sound from frame glass sides.

Before booking a flat, a buyer should find out who the structural designer and the soil consultant of the project is. "An architect is not responsible for the durability and the strength of the structure," says Er. Dr. Abhay Gupta, Director at Skeleton Consultants Pvt Ltd.

### **Dig dirt**

Questions about floor area and other amenities can come later. The first thing a buyer should ask a developer is for the soil report of the building. The strength of the foundation is best gauged through the soil report. It is often observed that builders undertaking small projects do not go for a soil investigation to save money. A developer in Noida was found to have passed off the soil report of the adjacent building. "Soil investigation for a small project generally costs around Rs 50,000 and Rs 10 lakh for a large apartment block but the test costs less than a percent of the entire project cost. It provides details of the ground water table, the foundation depth among other things," Gupta says.

If a developer shares the soil report, the buyer can rest assured that the builder has adhered to structural norms.

It should be mandatory to submit structural drawings along with floor plans with the sale deed at the registration office, say experts.

A board or the plate carrying information about a project at the entrance should be a must and carry the names of the architect and the structural designer and the IS code under which the building has been designed.

### **Do the coding**

Advertisements that claim that a project is earthquake resistant should mention the name of the structural designer, the IS code number and declare that the building has been designed for earthquake zone 4, says Gupta.

As with other products, construction, too, follows the Indian Standard (IS) codes. For instance, IS456 is the code for design of concrete buildings, IS800 for steel buildings and IS1893 is for earthquake-resistant design.

Also, check the construction quality for which a buyer or a group of them can together hire a structural expert. The cost can vary from Rs 25,000 for a single buyer to around Rs 2 lakh for the entire building.

### **Regular health check**

Generally, concrete buildings have a life of 50 years but considering the quality of materials used, the buildings start deteriorating within 15 to 25 years.

This is why RERA should call for an examination of the structure of a group housing project after 10 years and then every five years, says Dr Gupta.

Check the minimum column dimension of a building, which should ideally be 300mm or 1-ft. Buyers should also make sure that floating columns have not been used. What this means is that often there are large columns free area constructed on the lower floors and new set of columns erected from the upper floors. Column design should be continuous and not floating, says Dr Gupta.

Planning, too, should be symmetrical and buyers should ensure that they are not buying into projects that are "architectural fantasies"— large cutouts, buildings with elongated rectangles or protruding features.

### **Remember IS 16700**

If you are planning to buy into a higher floor make sure that IS code 16700 has been adhered to. It is the code for the safety and construction of buildings that are higher than 50 metre.

If you are buying into an apartment which is located above the 20th floor, make sure you get the building movement tested. The wind force is extremely important and building movement associated with it, especially in the event of an earthquake/wind. During an earthquake a building undergoes lateral movement and that is the reason why often loose furniture is not recommended for higher floors. Buyers should also check about the quality of windows used and the first test is to ensure that there is no humming sound from frame glass sides.

**Remember to tick these boxes as you go for house hunting:**

1. Do not shy away from asking questions on earthquake safety from the seller/developer. Written records of the questionnaire sent and responses received should be saved. This will give legal teeth if anything goes wrong.

2. Don't get confused with statements like "the building has been designed to Zone 5 or Zone 4 standards". Zones depict the seismic hazard and the earthquake-resistance category talks about the seismic performance of a building.

3. There are four types of earthquake-resistant buildings. Type A - operational, Type B- immediate occupancy, Type C- life safety and Type D - collapse prevention. Type A is the best and Type D the lowest. Occupants need to know which category their building falls in.

4. Almost all buildings in India are designed and constructed under the Type - D or "Collapse Prevention" standard. These buildings will get severely damaged and will not be habitable or repairable after a major earthquake event.

**New IAStructE Members****FELLOW" Grade Members**

<i>M/S No</i>	<i>Name</i>	<i>Designation, Organization</i>	<i>City</i>
F-468	Ms. Varsha Agarwal	Associate Technical Director, COWI India Ltd	Gurgaon
F-469	Mr. Ramakrishnan Vatakkiniyil	Senior Structural Engineer, ALTORATH International Consulting Engineers	UAE

**"MEMBER" Grade Members**

<i>M/S No</i>	<i>Name</i>	<i>Designation, Organization</i>	<i>City</i>
M-289	Mr. Sudhir Sharma	Project Manager, Solverra Technologies	Ghaziabad

**"ASSOCIATE MEMBER" Grade Members**

<i>M/S No</i>	<i>Name</i>	<i>Designation, Organization</i>	<i>City</i>
AM-315	Mr. Dinesh Babu Nagwekar	Proprietor, Gharkul Construction	Sindhudurg (Maharashtra)
AM-316	Mr Bhushan Thakkar	Jr. Design Engineer, Sterling Engg. Consultant	Kolhapur (Maharashtra)
AM-317	Mr. Sanjoy Kumar Nandi	Assistant Engineer – PWD	Bankura (WB)
AM-318	Mr. Syed Mohammed Haider	Jr. Structural Engineer, M/s Mahendra Raj Consultants Pvt Ltd	New Delhi
AM-319	Mr. Jayeshbhai Prasham Vora	Design Engineer & Proprietor , P. Vora Design & Engineering Consultants	Ahmedabad
AM-320	Mr. Nishant Kumar	Design Engineer, Happy Home Designer	Dhanbad

**"STUDENT MEMBER" Grade Members (4)**

1- Noida International University

1 - Shri G S Institute of Technology & Science

1 - NMIMS University

1 - Shadan College of Engg & Tech



## 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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