



## Message from the President



Dear Readers,

Hope you all are staying safe and protecting you and your family from this pandemic. COVID-19 is the biggest humanitarian and economic crisis of the century. Never before the entire country was in lock-down mode for so long. So this is definitely going to have an adverse economic impact in all sectors. The Structural Engineers, who are associated with the construction industry are also going to be affected by this pandemic. Future is uncertain and unknown for all. But one thing is certain about future. Future is going to be different from the past. We have to re-engineer and reshape the future

In this difficult period, the speech of Hon'ble Prime Minister in CII Annual Day on 2nd of June 2020 was very reassuring where he elaborated about his vision and road map of an AtmaNirbhar Bharat in the post-covid scenario, which will be built on the foundation of the 5 'I's: Intent, Inclusion, Investment, Infrastructure and Innovation. This certainly gives us some hope that future is not all that uncertain as the present.

Time has come for the members of IAStructE to brainstorm our new role in the changed scenario. We have to find new ways to disseminate knowledge and new materials to talk about to our fraternity. Our business model will need a change. Seminars and Workshops will be more and more in virtual mode rather than physical. Our members need to find new ways for survival. They have to acquire new skills to survive and find new ways of working. Work from home will be the norm in future.

During the month of June, the events committee has done a fantastic job by conducting three webinars and one panel discussion, details of which are given in this newsletter. I want to recognize the hard work of the committee in general and of Dr Anal Sheth in particular for the hard work put by her as moderator in all the webinars. The technical content in these webinars were extremely good and all the events received huge applause from the participants.

With best wishes & Warm Regards

ALOK BHOWMICK

IAStructE Publication Committee	Newsletter Editorial Team
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	Chief Editor : Er. (Ms) Anal Sheth Members : Er. Manoj Mittal Er. Bhavin Shah Er. Rajiv Ahuja Er. Maulesh Shah

## Newsletter Contents

IAStructE Journal: Call for articles	Member Achievements
IAStructE Annual General Meeting	Article
Webinars Conducted	Forthcoming Student Chapter Activity
IAStructE Student Chapter Activities	Newsletter Advertisement
Forthcoming Webinars	About IAStructE
	Membership Information

### 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, which will be published in E-Book Format.

Journal subscription | Article Submission | Sponsored Advertisement

The Editorial Board also invites the articles for the July – September 2020 SED issue. Interested Professionals may submit the Abstract by 31<sup>st</sup> July 2020 and full paper by 14<sup>th</sup> August 2020.

Submission template and ethics statement can be availed by emailing [iastructe@gmail.com](mailto:iastructe@gmail.com)

Interested professionals may also send the articles for publishing in monthly Newsletter, which can be sent to [iastructe@gmail.com](mailto:iastructe@gmail.com)

### IAStructE Annual General Meeting

The 16<sup>th</sup> Annual General Meeting (AGM) of the Association scheduled earlier for 13<sup>th</sup> March 2020, which was postponed in light of public health concerns related to the COVID-19 (the coronavirus) was organized virtually on 30<sup>th</sup> June 2020. During which the Annual Report for the FY 2018-19 was approved; Audited Account for the year ended 31<sup>st</sup> March 2019 were passed and the same auditors were appointed for the ensuing year 2019-20.

### Webinars Conducted

1. Innovation and Creativity in Structural Design by Prof V R Shah, Former, Head (Struct. Design), CEPT University on 21<sup>st</sup> June 2020. The recorded presentation can be viewed from the following link : <https://youtu.be/msLK2-Nc12Q>
2. Bridge Engineering - Recent Advances by Prof Mahesh Tandon, Past President IAStructE and MD, Tandon Consultants Pvt Ltd on 22<sup>nd</sup> June 2020. The recorded presentation can be viewed from the following link: <https://youtu.be/weLWJD5G5aI>
3. Panel Discussion on Role of Structural Engineers in Post COVID-19 Scenario organized on 27<sup>th</sup> June 2020 through Zoom meeting.
4. Earth Retaining Structures in Bridge and Highway Projects by Mr Rajiv Ahuja, Independent Consultant (Highway & Bridges) and GC Member, IAStructE on 28<sup>th</sup> June 2020. The recorded presentation can be seen at the following link: <https://youtu.be/OEoPFx53vqQ>

### IAStructE Student Chapter Activities

#### Webinars Conducted at IAStructE CEPT Student Chapter

IAStructE Student Chapter at CEPT University organized a webinar on "Masonry in context of Heritage Structures" by Mr. Pratik Gajjar, Ph.D Candidate (University of Minho) & M.Tech SED (CEPT University) on 30<sup>th</sup> May 2020.

#### Webinars Conducted at IAStructE DTU Student Chapter

The IAStructE Student Chapter at Delhi Technological University (DTU) organised a webinar on "Non-Destructive Evaluation Techniques (NDET) For quality Assurance & Management of Structures" by Mr. Sanjay Singh Gaharwar, Sr. Pr. Scientist, CSIR-CRRI on 19<sup>th</sup> June 2020.

## Forthcoming Webinar

IAStructE is organizing a Webinar "Durability of Concrete Structures" by Dr S K Dhawan, Former Chief Engineer, CPWD and GC member IAStructE on 05 July 2020 through zoom webinar. The link for registration is:

[https://us02web.zoom.us/webinar/register/WN\\_QCu4cTrjRz6uL21e3AJBZw](https://us02web.zoom.us/webinar/register/WN_QCu4cTrjRz6uL21e3AJBZw)

## Member Achievements

The project of "155' HIGH LORD HANUMAN STATUE AT SOLAN, HIMACHAL PRADESH" structural design by Dr. Abhay Gupta, GC member IAStructE & Director, Skeleton Consultants Pvt Ltd and his team got entered in the Limca Book of Records for tallest stand in Hanuman Statue.



Dr Abhay Gupta

### FACT FILE

- CLIENT: Manav Bharti Foundation, Solan
- CLIENT'S TEAM: Dr. Rajkumar Rana, Mr. Anurag Sharma, Mandeep Rana
- Architects: Pradeep Mamgain
- SCULPTOR: MR. NARESH KUMAR, TEMPLESMAC Gurgaon & Maturam Arts Centre.
- STRUCTURAL DESIGN CONSULTANT: SKELETON CONSULTANTS PVT. LTD.
- PROJECT COST : INR 5.00 crore
- CONSTRUCTION STATUS: COMPLETED (2014-2019)

### PROJECT BRIEF:

A 155-foot TALL Lord Hanuman Statue is constructed at the top of a hillock in the standing posture as per vision and concept of Dr. Rajkumar Rana of Manav Bharti Foundation and Sculptor Mr. Naresh Kumawat. There is a Gada in one hand of Hanumanji. The statue is made of reinforced cement concrete with a design life of 100 years.

The main elements of creating this monument are architectural and aesthetics of Lord Hanuman in the desired expressions by Sculptor, Structural Engineering & Design of main frame supporting the external shell and the design of shell itself, site geology and slope stability, A resourceful construction agency with lots of rich experience and capabilities, a well-defined construction methodology for Foundations, Main load resisting frame, external shall skin and finally the statue organ shapes.

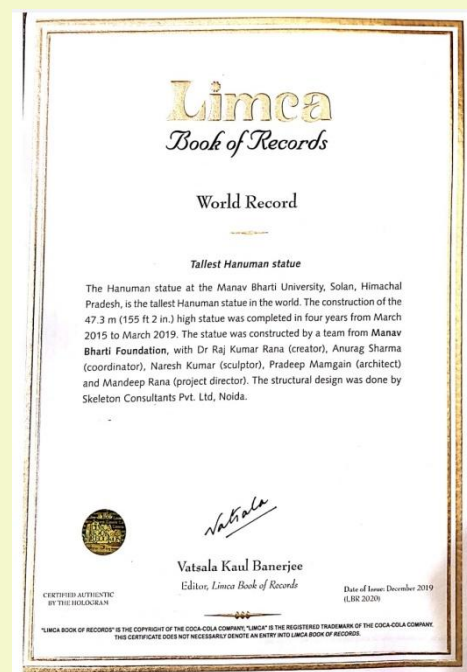
This unique statue has been considered for inclusion in Limca Books of records as Tallest Standing Hanuman Statue in Hills and we are proud to announce that it has been accepted and included in its 2019 version.

### STRUCTURAL GEOMETRICS

The RCC skin of the statue is supported on RCC beams projected from two main RCC columns till shoulder level, i.e., 120-foot level. Above that level, there is single column. The beams are provided at every 10-foot c/c distance and are projected till skin. Three columns (32-inch dia) are proposed at 17-feet behind the main columns C/C from base to knee level. Main Columns are varied in size to fulfil the serviceability requirements. Overall Surface area of Murti is about 15000 sqft. Total height of Lord Hanuman Murti including visible platform is 155-feet.

Invert Mace (Gada) supported by hand of lord hanuman started from 10-feet to 80-feet. There is 6-inch thick concrete shell skin and a hollow space inside. Approximate dia of skin is 14-feet. Tail of Lord Hanuman is hollow steel pipe of 12-inch dia.

Concrete grade of columns is M-40 and of beams & skin is M-25. Design life of Statue is considered as 100yrs. Seismic zone IV and importance factor 1.5 considered in design. Statue main frame is designed as moment resisting frame and as per IS 1893-2002 and other relevant Indian design codes.



## STRUCTURAL CHALLENGES & EXPERTISE

This is second one in the series of SIX such gigantic statues Skeleton has engineered with the support of Sculptor Mr. Naresh Kumar of Templemac. Starting with World's fourth tallest concrete statue "351-feet high Lord Shiva Statue at Nathdwara near Udaipur", Skeleton has engineered six such structures, right from 51-feet to 351-feet high and in various postures, including 51-feet high at Toronto Canada. Skeleton has developed a special methodology to convert conceptual statue to structural analysis model and then analyze the structural frame and skin for longevity of 100 to 250 years. The joint-less concrete skin has been subjected to thermal and other stresses and wind pressures. Wind tunnel testing is also conducted whenever required. Irregular geometry of human figure is highly complex to be converted to equivalent structural framing at various levels right from bottom to top. Accuracy of structural placements is very important since the skin casting on site depends on it.



Using glass fibre moulds for skin casting is a skilled job and well done by sculptor Mr. Naresh ji. Entire design of such complex structures is peer reviewed by experts like Prof. Prem Krishna. Skeleton team is fully equipped with resources and expertise in delivering more such monumental structures.

### Working Team:

Er. Ms. Vandana Verma & Mr. Sobhan Rawat have provided complete engineering under the guidance of Er. (Dr.) Abhay Gupta

## Articles

### COVID 19 and Urban Development

by

Mr Deepak Bansal, GC member IAStructE



The pandemic "COVID 19" is not only a severe viral disease but also a major global economic threat. To minimize human loss, Government of India, had imposed a national lockdown in four phases. The lockdown has delayed the spread of this pandemic, but due to national lock down, Indian GDP is taking a dip as people are losing jobs, industries/small&big businesses are suffering, migrant labour is going back to their native places in a most pathetic/deplorable conditions, is a common site. Almost all the sectors are affected, but the few hardest hit sectors are - Hospitality, Cinema, Malls, Aviation, Automobiles, Restaurants/Hotels, luxury products. The daily wage earners, small traders, street vendors, people involved in factories, service industry/unorganized sectors, people living on streets etc are badly affected. Even stray animals are also worst affected.

People are finding it extremely difficult to survive in this economic crisis, as their income is either reduced or stopped completely. The people with small/nil saving and those, who have taken business loans, are most worried. Although moratorium on EMI, has been announced by RBI, but how to pay EMI, after moratorium, is a big question among affected people, as there is no income on the assets brought by the loans, but they have to still pay fixed charges like bills for utilities and wages to their employees in the lockdown period. The stock/inventories kept in facilities, have either withered or have expired, resulting in compounding losses. There are reports, that food items kept in stores, cloths, timbers and many such perishable items have been damaged by rodents/termites, water/seepage, etc., and these were not insured. The landlords are also affected as their tenants are not in a position to pay rents, affecting the survival of those landlords, whose only income was through rents. There is depression, anxiety, fear and uncertainty among vast population.



In this pandemic, the population, which can work from home, using computers and internet, is working from home and more and more people are learning to work from home. Academic classes are being held online, conferences, training, medical consultation and many activities are also happening online. In place of buying from physical stores, e-retailing has been increased significantly. This is resulting in decrease of demand of commercial spaces, resulting in tanking of its rental and capital cost. This effect is further cascading into reduction of requirement of related paraphernalia like water , electricity, HVAC, office furniture, parking, food, stationary, vehicle, fuel requirements, etc. The requirements of unskilled and semi skilled workforce is further dwindling, as office boys, typing assistants, filing assistants, receptionist, etc are not required. Even the purchase of office/formal clothing is seeing a downward trend, as people are working from home in informal clothing and have less disposable income for buying. With the closure of Hotels/restaurants, vegetable, dairy and meat supply is severally affected. This is further reducing traffic and congestion on the roads. Buzzing business centers are wearing a deserted look. It is believed that more new virus attacks similar to COVID 19, are possible in near future; hence the current pattern of working is expected to continue further and may kill the traditional urban system of shopping,eating, business, education, hospitality,outing, etc., along with traditional lifestyle.

The future prospects of urban sector are going to change drastically, as with the current situation, people have adopted a culture of working remotely with computers, internet and with the delivery of required supplies at their desired places and time, they are comfortable. This current trend is expected to continue with the arrival of Internet of Things (IOT) and 5G/6G generation of internet, where many more things can be done at homes. The cities will neither have centralized big business centers, nor mass housing in cities and huge traffic. The huge demand for water/ electricity/HVAC/ office furniture/stationary/ Desk tops computers / Vehicles/ office spaces will not be there. The demand for unskilled/semi skilled man power will be substantially reduced. The pollution is expected to reduce, the quality of life may change for good, but people will be lonelier.

With high economic activities, cities had expanded beyond municipal limits and have witnessed growth of many urban villages , slums, unauthorized colonies on different land uses other than residential. Floods plains/Forest/Government lands have been encroached upon. Many colonies are on low lying areas. The structural conditions of the buildings in most of the cities are very poor and in many residential buildings, commercial activities are taken place, violating all norms and regulations. There are narrow roads in many localities, where fire tenders can not move in case of exigencies. The natural lighting and ventilation is another big question in these localities, resulting health conditions. Sewerage systems are not working properly and electrical cables are dangling dangerously everywhere. These buildings are at high risk in cases of Earthquakes, floods, cyclones, fires, etc., and in case of spread of diseases like Dengue, Plague etc. Even COVID 19 is affecting more people in urban slums like "Dharavi" in Mumbai and in many more cities due to very dense settlement, no physical distancing and poor hygienic conditions. This is a lesson for urban planners/engineers & enforcement agencies that such unabated unauthorized/illegal developments are most vulnerable in case of any hazard/pandemic. These should not be regularized even on humanitarian/economic ground. Human safety is of utmost important and these slums/unauthorized colonies needs to be re-modeled. The current pandemic COVID 19, may leave unskilled and semi skilled people jobless residing in these slums/unauthorized settlements, resulting in migration, hence these settlements can be easily re-modeled, as per National Building Code of India. As urban planner/Engineers, we need to focus more on safe urban built environment and plan urban infrastructure according to the current trend with less demand on urban infrastructure. We have to design more cities with less population with focused economic activities and less infrastructural services.

The views expressed are personal.

\*Deepak Bansal is a Civil cum structural engineer and is affiliated to Indian association of structural engineers, Bureau of Indian standards (India), Indian society of Wind Engineers, International Masonry society of United Kingdom, TERI- SUV- GRIHA. He can be contacted on [dbansalindia@gmail.com](mailto:dbansalindia@gmail.com).

## Transcript of Talk during CEAI webinar on Qualification/Competence & Registration Issues

by

Mr Manoj Mittal, *Immediate past President IAStructE & Independent Director POWERGRID*



We often call ourselves as Professional Engineers or Professional Consulting Engineer as the case may be. As you noticed we have three key terms- Engineer, Professional & Consulting. Do we really understand these terms?

We say we are Engineer primarily because we have a university degree in engineering. But what about the person calling him Engineer who does not have engineering degree? Can we stop him? Probably not since at present title of 'Engineer' is not protected by law and we do not have any regulation for engineering profession. Rather legally speaking Engineering is not recognised as a profession.

We are consultant because we render our engineering services to a client who does not have expertise and knowledge in that area. We also get fee for our services. Another key feature of being consultant is that client should also feel obliged for the services rendered by you. We must recognise that we are 'consultant' not merely 'service provider'. There is difference between the two. Another important term is Professional. Qualification, skill, experience, competence membership of professional institution, code of ethics, accountability, autonomy, and confidentiality etc. are important criterion for being the professional. But at present do we have any credible mechanism to ensure all these? Answer is no. Hence for taking consulting engineering forward and to enhance the status of engineers regulation of engineering profession by way of engineers act is must.

As I mentioned earlier Qualification and competence are very important for a professional consulting engineer. In the absence of any Centralised engineering regulatory body several organisations [there number may be in hundreds] are prescribing qualification and competence of engineers for design, supervision, testing & certification etc. We have NBC prepared by BIS, Model building bye-laws prepared by TCPO and then numerous municipal and development authorities also have their building bye-laws. All of them have their own set of qualification competence prescription. There is lot of variation in them. Consulting Engineers working in one area are not sure whether they are competent to work in another state or municipal corporation. I can give you several examples of this practice in India. It is highly undesirable for conducive growth of the consulting engineering and must be fixed.

In the absence of Engineers act Qualifications and competence given in NBC looks most appropriate and must be followed by everyone without exception. BIS documents are prepared after lot of consultation and deliberations. It has inputs of all stakeholders. Since all codes and standards are prepared by BIS they are in best position to state qualification requirements for professionals for implementation of codes.

In the absence of any centralised registration system many municipal corporations, local bodies, development authorities and states require registration to practice. It is very difficult and expensive for a consulting engineer to to get registration in these corporations. Some corporations are even charging as high as Rs 20,000/- for registration. It often leads to malpractice. Actual design is being done by someone else while for approval signed by some other engineer. This is also not good for healthy growth of consulting engineering.

Centralised Engineers act and a regulatory mechanism is perhaps the best solution to overcome these hurdles, in the absence of it we must make efforts to ensure that all over India qualification & competence for professionals as given in NBC must be followed in Toto. All professional bodies like Institution of Engineers, CEAI, IAStructE, and ACCE must make efforts in this direction.

Further there should not be any requirement of registration of engineers in these municipal /local bodies if they are members of these professional bodies. Further Civil Engineers who are engaged in design and construction of buildings have many issues with COA as architects and civil engineers have some overlapping area. We also need to fix it urgently as it is causing hardship to large number of civil engineers all across India.



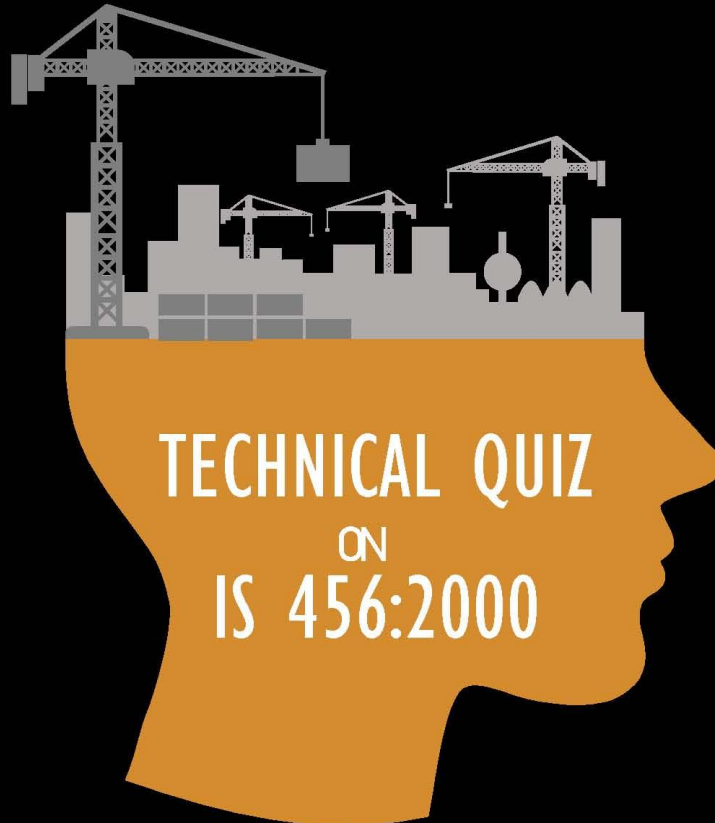
CEPT  
UNIVERSITY  
FACULTY  
OF TECHNOLOGY

## Indian Association of Structural Engineers (IAStructE)

Student Chapter

Faculty of Technology, CEPT University, Ahmedabad

### Presents



#### GUIDELINES FOR THE EVENT:

Date	:	8 August, 2020
Time	:	4:00 PM – 4:30 PM
Eligibility	:	UG Students of Civil engineering, PG students of structural engineering and research scholars in related areas ( <b>Indian Nationals Only</b> )
Evaluation	:	Time based competition. 30 minutes 45 questions. Only one correct answer. No negative marking. 1 mark per question.
Registration	:	<a href="#">Click Here To Register</a>

#### RULES

1. The quiz shall be conducted online on web based platform. Participants are requested to have proper internet access at time of quiz.
2. Internet requirements for the quiz should be managed by the participants. IAStructE Student Chapter CEPT University (ISCC) shall not be responsible for any expenses or internet loss regarding the same.
3. The quiz shall be open for access at the designated start time and shall end virtually at the closing time.
4. There shall be no negative marking for the questions which are found incorrect.
5. IAStructE Student Chapter CEPT University (ISCC) shall hold the final authority for results. In case of any dispute, ISCC holds the highest authority.
6. The quiz shall be based on IS 456:2000 and amendments associated with it. IS 456:2000 and associated amendments shall supersede any previous published revisions/amendments related to IS 456.
7. Upon registering, participants agree to share/use their mentioned data at time of registration, if needed by IAStructE Student Chapter CEPT University (ISCC).
8. Only 1 response per quiz can be made for each participant. Once submitted, the quiz form cannot be edited.
9. It is mandatory to submit all questions for completion of quiz.
10. Quiz is open to only Indian Nationals.

Student Coordinator | Dhaval Sheth  
dhaval.pg190271@cept.ac.in

Click here to follow us  
and stay connected



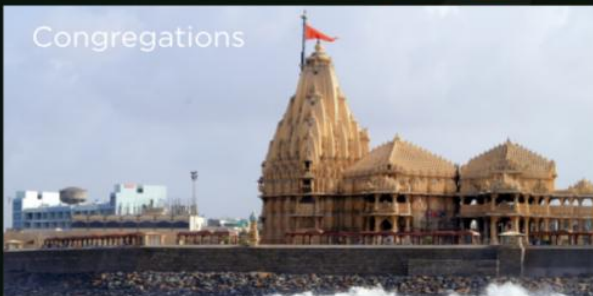
Registration form can be accessed from the following URL:

[https://docs.google.com/forms/d/e/1FAIpQLSfvcZmwM8PkJZnr2frPzLEoMBD7xXazQMcYVELSaqiQN\\_WWQ/viewform](https://docs.google.com/forms/d/e/1FAIpQLSfvcZmwM8PkJZnr2frPzLEoMBD7xXazQMcYVELSaqiQN_WWQ/viewform)

# FUJI

## Creating foundations of excellence in India

FUJI has embraced the culture of India positively and put their right foot down to bring in a revolution in the construction sector. FUJI provides comprehensive precast concrete solutions for assisting the rapid and efficient development of infrastructure projects all around India.



### FUJI Silvertch Concrete Pvt. Ltd.

4th Floor, House No. 5, Magnet Corporate Park,  
Near Sola Flyover, SG Road, Thaltej, Ahmedabad - 380 054.

Phone: +91 79 4021 0000 • Email: [info@fujisilvertch.com](mailto:info@fujisilvertch.com) • [www.fujisilvertch.com](http://www.fujisilvertch.com)





## 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

K-69A , Basement, Kalkaji, New Delhi 110019

Tel: (011) 45794829 ; Email: [iastructe@gmail.com](mailto:iastructe@gmail.com); Website: [www.iastructe.co.in](http://www.iastructe.co.in)