

# In Conversation with the Doyen of Structural Engineering, Mahendra Raj

**E**r. Mahendra Raj needs no introduction in the construction industry. As an independent professional as well as the founder of one of the leading consulting firms in the country, he has made enormous contributions to the industry.

Er. Mahendra Raj started out his career as an Assistant Engineer in Punjab Public Works Department in 1946. After completing his higher studies in the US, he went on to become an independent professional in 1960. In 1976, he set up Mahendra Raj Consultants Private Limited to offer consultancy services to the local industry as well as neighboring countries. He worked on a number of projects which set a trend of innovative construction practices in the country. Some of the projects include Usha Kiran (Mumbai), Covered Sports Stadium (Srinagar), DCM Hindon River Mills (Ghaziabad), Tagore Memorial Theater (Ahmedabad), and Hall of Nations and Halls of Industries (New Delhi).

Er. Mahendra Raj has been a part of some of the most prestigious organizations and industry bodies in the country. He was President of ACEI (Association of Consulting Engineers India) for a long period and played an active role in the setting up of the CDC (Consultancy Development Center) and the ECI (Engineering Council of India).

He has also been active in FIDIC (International Federation of Consulting Engineers) ever since India's entry into the federation in 1981. Due to his efforts, the Indian Association hosted three FIDIC related meetings in Delhi.

Plus of course, as everyone in the fraternity knows, he has been in the forefront of the initiatives to make the Engineers Bill a reality. His ceaseless toil and dogged pursuit has been instrumental in raising awareness as well as creating momentum for bringing in the bill.

With over 60 years of professional experience and his penchant for experimenting with new concepts and adopting new technologies, this doyen continues to set

high standards for aspiring professionals in the industry

In a rare and exclusive interview with **The Masterbuilder**, Er. Mahendra Raj spoke in detail about his expectations and steps to improve the standards of current engineering education, and the initiatives taken to bring the 'Engineers' Bill'.

## Excerpts

**You have been at the forefront of the campaign for the Engineers' Bill. Please share the experience**

Even though, a draft was submitted and nothing has happened about the bill, we the CEAI and the ACEI, filed a PIL against the MHRD. The government knew very well about the differences amongst various institutions. They gave an affidavit to the court stating, the MHRD was in favour of the bill but there was no consensus among the engineers. The court, based on this, directed engineers to approach the government with consensus among professionals.

On the basis of the Court's verdict on 8th February 2000, the ECI was established on the 4th of April 2002, with the support of a large number of professional bodies, including the IEI Institution of Engineers India with the patronship of, the then Dy. Chairman, Planning Commission, Mr. K. C. Pant. The terms of reference, was drafted by a three-member committee including myself. Things were going well. A first committee was formed.

Another draft was submitted by the ECI in 2004. The MHRD assigned the responsibility of regulating engineering profession to AICTE, instead of enacting a bill in the parliament. However, this was contested in the court and the judgment, that AICTE has no mandate for this and another body was required to be formed. Based on this, another committee was formed with the members from the ECI, IEI, CEAI and the AICTE. A third draft was prepared by this committee. It was felt,



Er. Mahendra Raj

the bill was a diluted one and was not an adequate one.

Thereafter, under the Chairmanship of Retired Secretary to the Government of India, Ministry of Power, Mr. R. V. Shahi, another committee was formed and the fourth draft was prepared. This committee too, had members from the ECI, CEAI and the IEI. This draft was circulated to all the ministries for their comments.

Based on the comment, the bill was being processed to present it in the parliament. However, this also got stuck, since a view was presented stating the Institution of Engineers (India) was adequate to regulate the profession and an act of parliament was not at all required.

**Several drafts having been submitted to the government! What is the latest development?**

As you mentioned, several drafts of the bill are lying there with the government. The bill has been bouncing from one government to another, through different secretaries, ministries, etc. To put it in a nutshell, the problem is, lack of consensus among the engineers.

I had met, the present Union HRD Minister Smriti Irani recently on the issue. Later on, we learnt that another delegation had also met her. So, the government has repeated its stance 'go build consensus among yourselves first (the engineer-

ing community) and then come to us. The recent attempt too, met with the same fate and an order was passed, stating such a bill was not required and the matter stands closed.

**Are you still hopeful?**

Yes, of course! The current stand of the Government is that, we start regulating the profession and initiate PE degree to engineers and then approach the Government. The ECI and the IEI have started the exercise. The CIDC is actively involved in this. I am told, that a large number of engineers have applied for PE.

**But the Architects did not seem to have faced so much trouble?**

They were lucky in some ways. Those days, there were very few Architects. Even during that time, there was a big debate. It

took a couple of years, for the Architects' Bill to be passed. Before that, all the works, the architects are doing now, were being done by the engineers too. The Architects' Bill, therefore, came to protect the architects' profession. The Engineers are the other professionals, who can continue to concentrate on other core areas.

**Your views on the amendment to the Architects' Bill that COA is seeking?**

Yes, the architects themselves have realized, that it is not possible. I think, they have realized. By their actions, they have mobilized a lot of opposition to the amendment that they are seeking.

**You have had a long, illustrious career that's continuing to go strong. Would you like to share the most memorable career milestone for our readers?**

Perhaps the most memorable moment is when I started my career in this field way back in 1951. That was the time I didn't know anything about structural engineering, even though I had been working for a few years till then. Remember, I had graduated in 1946 and was selected by the Punjab Public Works Department as an Assistant Engineer in Lahore. This was before partition. Then after partition, I was posted in Shimla. I had experience in civil as an A.E., but structural design was still new to me. Then, as destiny would have it, I did my MS in structures from Minnesota in 1956 and CE in structures from Columbia, New York in 1959. After which I started my independent practice. All these happenings changed the course of my life. ♦

## BOOK REVIEW

### THE STRUCTURE WORKS OF MAHENDRA RAJ

Author: Ar. Mahendra Raj

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The Structure: Works of Mahendra Raj explores the oeuvre of Mahendra Raj's sixty prolific years of practice as a structural engineer. His unusually inventive and intuitive work reveals bold and pioneering engineering solutions for buildings in exposed concrete over the years. Most of his structures are now artefacts that narrate the energetic period of nation building in post-Independence India.

Some of Raj's buildings are unique, one of their kind, in India and the world, for instance, the Hall of Nations and Industries with their large span cast-in-situ space frame and the Hindon River Mills with a series of bowstring arches in concrete. His practice also boasts of heroic structures built in the '60s and '70s such as the large folded-plate cantilevered structure in concrete for the Municipal Stadium in Ahmedabad, the folded-plate frame for Tagore Hall, the transfer girders that realized the architects' needs for the New Great Insurance Co building and Akbar Hotel all pioneering constructions in India. The '80s saw further innovative structures such as the zig-zag columns stabilized by corridors in the NCDC office and the use of Vierendeel trusses in the STC office building to create cantilevered large-span cascading forms.

The book presents 28 structures through a rich collection of over 100 archival drawings and nearly 400 photographs along with contributions from architects, engineers and academics from around the world.

