e-conference on Professional Issues in Structural Engineering in India

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hosted by

National Information Centre of Earthquake Engineering
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Moderators [Sun, 25 Aug 02 21:25:18 +0530]

Dear All,

Hello and welcome to the second e-conference "Professional issues in the field of structural engineering in India" hosted by nicee.

The Bhuj earthquake brought home the reality that all is not so right in ur seemingly impregnable world of concrete and steel. Buildings in Ahmedabad, which should not have experienced any major structural damage, fell like a house of cards.

The earthquake has been a clarion call for us as a community of practicing engineers to do some soul-searching as to why things have come to this level.

The practicing engineer finds himself today at the cross roads -

At one end, an increasingly competitive world has pushed the small structural engineer to lower and lower fees, especially in smaller towns (where it is not rare to see him have to compete as a design engineer with an architect, a diploma holder, a contractor and perhaps even the mason). Additionally, the past three years have seen a recessionary trend in the real estate and in industrial projects. For larger projects, there are now many multi-national companies in India, which are ready or capable of buying out or driving out Indian companies from the market. Additionally, expenses - licensed software, engineers and draftsmen are getting dearer each year.

On the other hand there is a dearth of an enlightened clientele who can differentiate between good work and bad. The buzz words are "economy" and good "packaging" and in a system which does not punish the flagrant violation of Codes of practice, engineers may be tempted or coerced into producing shabby work due to financial or time constraints at the expense of good engineering. We have seen the sad results at Ahmedabad. (Some professional engineers there were criminally charged and were imprisoned without bail for many months).

It is for this very reason that the engineering community needs to come together if only for its own health and survival. There appears to be a need for a code of ethics, a respect for the sanctity of the statutory codes of Design practice along with a need for a more stringent regulatory system. Perhaps we would respect ourselves better, take our mission

more seriously if the license to practice as an engineer did not
come so easily. Or perhaps if there was a culture of professional liability and accountability. Or if there was not so much undercutting in fees.

These are just some of the issues that came up while discussing the subject with a number of colleagues around the country and we thought these needed to be shared amongst all of us. Hence this e-conference. There may be so many more issues that you would come up with. If we are able to even articulate what is wrong (and right) in our field of professional practice, we would have achieved much. But being greedy, we
shall all aim at something more- we hope we come up with some directions pointing to possible solutions. We hope each one of us will contribute and make this e-conference a starting point to establishing a strong fraternity intent on cleaning up its house.

Alpa Sheth and Sudhir Jain

Shirish B. Patel [Mon Aug 26 00:44:01 02]

Professional Issues in Structural Engineering in India

I would say the central professional issues today are the following:

- Low status in civil society
- Poor salaries, and low professional earnings
- Poor education, with no continuing education after graduation
- No commonly observed code of ethics in securing and performing work
- Lack of concern for durability and the long-term performance of structures
- No accountability

I believe the way forward is as follows:

1. No structural engineer should accept that he is ONLY a structural engineer. Fundamentally he is a civil engineer, with all the general competence and ability that the term implies. Structural engineering is his specialisation. Unless he has a basic interest in civil society, and in how to provide it with its infrastructure, he will always be sidelined as a mere technician, called in to do a specialist job and then dismissed. Architects will be the physicians and surgeons of the construction world; structural engineers will be the equivalent of X-ray radiologists. If we want to raise our status in civil society we need to engage ourselves in issues of civic interest, and also take a more serious interest in conceptual design.

2. We have allowed payments for our services to steadily decline. As a result, salaries have declined, and corners are cut in performing services. Mechanical and Electrical engineers now earn more than Civil engineers (50 years ago it was the reverse) because industry recognises their worth and pays them accordingly. In Civil and Structural engineering, professionals have been steadily cutting their own throats, under-bidding each other in order to secure work. If you yourself don't think you should be paid more, why should anyone else think otherwise? We need to end the process of procurement of services by competitive bidding, and move back to payment based on a standard, professionally determined scale of fees. Selection by clients should be on merit, not on the basis of who quotes the lowest fee. We need to also educate clients on the enormous impact that the quality of service has on his final project, an impact out of all proportion to the difference in fees paid between any two consultants.

3. The proliferation of engineering colleges has led to a decline in education standards. This has been accompanied by a decline in the quality of students admitted, because the better students are now going to other branches of engineering, because civil and structural salaries are so poor. To re-establish standards in civil and structural engineering we now need separate, professional examinations conducted by a central body.

4. The Institution of Engineers (India) is too diffuse a body to address the problems of Civil and Structural Engineering. We need a separate, central body-a kind of central Institution of Structural Engineers-to replace or assimilate within itself the many different Institutions or other bodies of Structural Engineers that have proliferated in the country. Professional qualifying examinations could be conducted by such an Institution. Passing examinations conducted by such a body should be a pre-requisite to setting up a professional practice. It might also set in place a series of measures to ensure Continuing Professional Education.

5. Such an Institution would maintain a roll of Professional Members qualified to practice. It would have disciplinary powers to proceed against Members breaching its code of ethics. It would have the powers also to investigate complaints against any of its Members.

6. On the question of professional liability, I believe a strong central Institution is the best guarantor of adequate professional performance. Imposing limited financial liabilities on practicing professionals will only call for insurance cover, the cost of which will be passed on to clients. In our country, with its impossibly long legal processes, the proceedings required to recover money from a sub-standard professional will be endless. Far better and swifter would be an investigation by a body of fellow professionals.

7. Finally, I would say that negative controls, of the kind that would be exercised by a central Institution, may contain the damage that maverick professionals might cause. But they provide no great force for raising standards within the profession. For that to happen, it is the individuals themselves who must be better persons. To achieve that, we need higher fees, and a higher status in society; and to achieve that, we need to engage ourselves more vigorously with the significant problems around us.

Shirish Patel

Girish Bhel [Mon Aug 26 01:05:01 02]

hi there,

I was in Baroda as a project engineer with L&T when the earthquake occurred on 26th january morning. I distinctly remember it as i felt the tremors shaking my bed and the fan going absolutely crazy. It was unexpected. I did realize being a Civil engineer that it was an Earthquake.

The news of the devastation caused by this earthquake shook me to the roots of my values and ethics that i had been brought up with and the ones that were ingrained into me by my professors and my belief in civil engineering as a the engineering which always created useful things for people, helping them being comfortable in life. The reason i am stating this is that this is what happened to lot of other civil engineering professionals that i came in touch with after the earthquake. They wondered who was responsible for this The Engineer or the construction companies or people. As Ms Alpa has pointed out, the clients request for economy forces a good engineer to specify barely standard material which is further endangered by the flagrant abuse of the specifications by the contractors. It is time to possibly take the following steps not only by the civil engineering community but by our so called elected officials.

1. Declaration of Construction as an industry : This step essentially has to be taken by our elected representatives. However it is upto the engineering community to force them to take this step as a number of these representative make financial gains by having interests in construction companies which in turn exploit both labour and engineers in absence of its recognition as an industry. This would also bring in a large amount of accountability on part of both the company and the engineers employed by the company. It also becomes essential that the companies are forced to employ engineers (primary qualification being a Bachelors atleast) for various critical tasks rather than draftsman or diploma holders, who nonetheless may have relevant experience but lack critical analytical skills.perhaps the US model of

licensing of construction companies based on engineers employed and qualification for work in private sector be employed.

2. Formation of Professional Bodies : A professional examination and licensing board to be established, if not supported by government, but
perhaps supported and managed by professionals or academia, not only for civil engineering but for all engineering community in general.Again would suggest the US model since it is much better than the European model at present. FYI even US licensing bodies for engineers is in talks for increasing the requirement for Professional Engineering license to be atleast a Masters in Engineering or equivalent.

3. Formation of an Governing body for Civil engineering profession : Essentially this body would look at the avenues of increasing the technological exposure of students in civil engineering and professionals. This body can also be viewed as a bargaining body for civil engineering and enforcer of the ethics of the profession. however it should be noted that this body should not be like the present bodies in india for Doctors or Lawyers who are more interested in protecting the guilty rather than prosecuting them, essentially acting as the judge and jury of the profession.

I would like to add here that engineers are perhaps the only one who have really felt in their heart and minds the backlash of what happened on january 26th and what it hold for them. The contractors run scotfree because the legally engineer in charge (?) is responsible for the
structure. It is time i believe now to introspect and change the face of the profession.

regards

Sudhir Badami [Mon Aug 26 08:40:01 02]

Firstly, a Structural Engineer is a human being in a civil society. Having been 'trained' as a civil engineer, his competence is quite wide and general and is in position to design and shape and execute projects. He may not be able to design spaces with imagination and aesthetics but otherwise he is capable of doing anything an architect can do. And that should be his confidence level. Specialisation in structural engineering does not take away this competence.

Although a structural engineer may not be planning a space and services, he is contributing to a construction project by designing the most important part - the back bone or the skeleton and in doing so he has to also understand what other components are. He may not be designing and detailing spaces and certain

services but he needs to intelligently interact on all matters concerning habitat. If he finds some thing is not proper from what he understands is good practice of planning and engineering, it would not be proper for him not to express his observations merely because he happens to be a specialist, a structural engineer. His intelligent interaction makes him a partner in the design process and not a bystander merely 'switching on some lights' when the 'director' asks him to do so. He has to show his worth in planning activities and partnership in the process. Then alone will the civil society give cognizance to his competence and be willing to treat him respectfully, reflected
well by the fees and salary paid to him.

It is a matter of mindset. Self esteem in the profession is necessary and that gets imparted by the faculty at the educational institutions at a very early stage and the senior professionals thereafter. Self esteem is low if the society pays salaries and professional fees not commensurate with the tasks carried out. It is a cart and the horse story now. But that can be broken by civil structural engineers showing their overall competence, one by adhering to a standard fee structure and two, not remain a bystander in profession or civic issues.

Sudhir Badami

Indrajit Barua [Mon Aug 26 09:43:00 02]

After almost 45 years in the profession, I'm about to leave it -- I'm that fed up. My firm does both architectural & civil engineering consultancy. My partner is an architect; I'm a civil engineer. I am truly apalled by the degradation of both architectural; engineering professions. Clients want us to quote the lowest fees. The Council of Architecture has standards of (minimum) professional fees. Yet, architects continue to quote fees lower than the minimum prescribed. I don't think that the professions can be improved without a bit of self introspection and self-discipline.
There are now too many architects and civil engineers in India. The colleges should reduce their intakes by 50% for the next 10 years or so, if standards are to be improved.

Indrajit Barua

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kamal parekh [Mon Aug 26 09:45:04 02]

Hellow Friends/C0-Practiceners -
This Kamal Parekh from Surat -

My issue is relsted to design checking agency -
1) - Roll of an agency (Appointed by a Local Authority) ?
2) - Design & Detail methodology to be followed ?
3) - Analysis package to be used by an Individual Consultant ?

Related to all above mentioned issue pl. discuss the matter -because now a days the authority engages certain agency which is in the form of Technical Advisory Cell - which act as a design checking / scrutinising agency their rolls are not clearly mentioned while as a consultant we submittes the drawings .

It is not clear yet regarding the methodology to be followed by them - so many of the time they may insists for specific package only to be used for analysis

pl. discuss the matter & guide us
kamal parekh

Dipak Shah [Mon Aug 26 10:08:00 02]

"NAMSKAR"

Considering NICEE efforts as a learning process that perhaps tells us that horizon will cross the day we took a dream and put the first step forword.
STRUCTURAL ENGINEERING in Gujarat State (& else-where in the country including metros too)

- Present License System

Ahmedabad, Surat, Vadodara, Rajkot, Bhavnagar, Jamnagar etc Urban Development Authorities and Municipal corporations functioning under the SINGLE department. However they have their own regulations (qualification, experience, fees, duration, renewal etc) instead of common one! There is zero system to verify knowledge and experience, only few documents entitles license on request.

- Duties & Responsibilities

(a) To prepare a report of the structural design.
(b) To prepare detailed structural design and to prescribe the method and technique of its execution strictly on the basis of the National Building code or relevant Indian Standard specifications.
(c) To prepare detailed structural drawings and specification for execution indicating thereon, design live loads, safe soil bearing capacity, specification of

material, assumptions made in design, special precautions to be taken by contractor to suit the design assumptions etc. whatever applicable.
(d) To supply tow copies of structural drawings to the site supervisor.
(e) To inspect the works at all important stages and certify that the work being executed is up to the satisfaction of the Architect/Engineer,
(f) To certify the structural safety and overall structural soundness of the building to the Architect/Engineer.
(g) To advise the Owner/Architect/Engineer for arranging for test and their reports for soil, building material etc. for his evaluation and design consideration.
(h) He shall prepare the revised calculation & drawings in case of any revision with reference to the earlier submission of the drawing & design in a particular case.
(i) To submit the certificate of structural safety and over all structural soundness of building to Competent Authority.

- (Professional) Practice

Non Engineering construction (load bearing str.)-bunglows,raw house,tenaments etc with lintel bend & corner steel/RC column is extensively in practice.
In context with the duties & responsibilities narrated above,engineering construction wrt
multistoried buildings coming-up,even at collapsed sites are still lacking implementation of IS 456-00;IS 1893-1984/02;IS 139-1993 etc.
Inputs at Str.analysis & design level are minimal due to lack of inclination to follow the codes judiciously or due to limited resoureces.
Structural Detailing-drawings are in form of general layouts & schedules!Bar-bender heads the all decisions for cut-off/anchorage/bonding etc !
Inspection and Testing of Materials & of Concrete are seldom.Casual inspection by jr.engr/draftman from design office is the eye-wash against the total responsibility.
Structural stability certification is merely a piece of paper instead of ground reality
Documentation from design to execution is rarely available.
Remuneration,the major factor influenced the duties and responsibilites is @ Rs.1.5 to Rs.3 per sq.ft for small/medium size building (up to 15000 sq.ft) where as for lage scale work it reduced further to the extent of need at either end !

- Social response
Social response to support the REAL structural engineering in building industry is despicable.Even members re-building their appartments at collapsed sites are inclined for economical construction at cost of safty norms(@ Rs.350 per sq.ft).The fake stability certificate to regularize the ill-legal existing buildings/appartments is easily available at throw-away price!

"For Buildings, code requirements are seldom, if ever, enforced, local

jurisdictions typically do not have a mechanism in place to enforce code requirements.This not only explains much of the damage observed to engineered buildings, but also indicates that the promise of a bright future is not on the horizon"S.K.Ghosh,an eminent structural engineer and specialist in earthquake resistant design,Illinois,USA.

DREAMING IMPROVEMENTS

- There must be an active ENGINERING council like other professional institutions.
- There should be rational norms for issuing, defining the validity period and jurisdiction.
- There must be single license system with categorization under state and grant/renew of license should be based on high level professional examinations only.
- The Str.Engrs.professionalism should build from student age.Educational system-curriculum to be regularly revised with national & inter-national needs.
- Improvement of knowledge and its field application in professional age is a key factor.We lack the exchange of applied knowledge.Our major seminars and work-shops highlights the theoretical knowledge instead of exhibiting live designs of buildings.Noteworthy begining is a valuable book "DESIGN OF R.C.STRUCTURES FOR EARTH-QUAKE RESISTANCE" by ER.D.S.Joshi & others published by ISSE-Bombay.
- Indigenous soft-wares for analysis,design and drafting is the major tool essential to channelised the system.At least design and drafting modules for world top of line softwares (GTSTRUDULES,SAP00,ETABS,STADD-PRO,etc.)will ease the design work.
- There should be a system to ensure that the design itself on first hand is at-least as per codal provisions.What is the fun in convicting a structural engineer for the collapse of his own certified structure, where as you have number of human causalities on this account.
- If the Structural designer has to certify the soundness of work to the satisfaction of Architect/Engineer and authority,it has to based on the documents/facts represented by the Engineer-in-charge who have supervised the work only.
- Extensive site supervisions wrt structures envisaged at design stage is a must.
- Remuneration to the work done should be reasonable to keep head up with self-satisfaction.

The problems seem mountainous that isn't surprising.After all,one has less experience to tackle them,sometime the approach is not correct at others one don't have enough money.

Beginning though very important, need to be followed by persistence. If WE can withstand the intial onslaught, WE are likely to reach the final destination call it patience, call it tenacity or call it strength, it boils down living everyday with the belief to carry on.

Coming together is a beginning,keeping together is progress,working together is a success.
Lets work together to up-lift the our profession.

Thanks,

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"Pearls are found in oysters and oysters do not shine"

Vivek Abhyankar [Mon Aug 26 11:36:01 02]

Before making any statement here i say Sorry to all conserned. Because I don't have much experience but what ever I have observed, that I am mailing here.

For almost all Mega Bridge projetcs the authorities in India apoint a foreign structural consultants. And to empliment this a sub consultant from india is apointed (sometimes) as a proof-consultant. Currently I am involved with 2 major big bridge projects (cable-stayed). In both these projects the Main structural consutant is foreign party. They follow different different codes for bridges. Hence one bridge may be as per CEB and other may be as per something else.

If the authority feel that indian consultants do not have capacity to design the Mega progect then why not to apoint foreign consultant only as 'proof consultant'. I agree that we in india have lack of INFRAstructure, testing facilities etc. But if we keep on thinking on this issue then when we will grow?

If I am wrong then please correct me !!

Thanks and Wishes to all.

B K Raghu Prasad [Mon Aug 26 12:28:00 02]

Dear Professor Sudhir,
I totally agree with the ideas expressed by Mr.Shirish Patel.It is high time we implemented all that.When we want structural engineers to do a much better quality job like earthquake resistant buildings all those ideas have to be in effect.People should be made to realise that they can get better quality structures with longer life only when they pay more to the whole system which includes analysis and design in the constuction of the final product.People quietly pay higher prices for more luxurious automotives,electronic and other gadgets although the prices will be many times more than what it should normally cost.However,when it comes to civil engineering products such high prices even if justified are considered unnecessary, basically because of undercutting by unscrupulous men in the profession who finally undermine the quality also bringing bad name to the profession as such.Infact,civil engineering profession has lost its credibility and status because of such practices. Civil engineering is not considered as a science at all like other branches but as a means of making wrong money. Only when all the stuctural engineers meet in a forum they can fight out such issues.

Yours Sincerely,
Raghu Prasad Professor,Dept.of civil Engineering,IISc. Bangalore.

Rajesh Samarth [Mon Aug 26 12:45:02 02]

Dear All,

The talk of structural engineers being human beings etc. etc. is Ok and sounds good.

What is needed is that Structural Engineers should wake up and take matters in thier own hand rather than to wait for some miracle to happen.. increase in salaries/fees, status, enlightenment of Clients etc.

I feel that a strong body like 'Institution of Structural Engineers' would be a great start, as is suggested by Mr. Patel. That will just be the
start and together we will have to work towards making this body effective and should act in the interests of the Structural Engineering faternity (and not just one of the several ineffective societies). Further the idea similar to a PE (Professional Engineer) in the US should be the goal. An basic qualification, an examination and continuing education is a necessity to improve the general quality of work in this feild.

Rajesh Samarth

Prasad Gunturi [Mon Aug 26 14:16:01 02]

Hi All
I am quite happy to see all of you again in the E- conference on "Professional Issues in Structural Engineering in India".

26th January 01 Gujarat earthquake once again high lighted the importance of structural engineering in the country and also given an opportunity to the nation to think about Earthquake engineering . But as we know the memory of people is short and they are forgetting all the stories of massive destruction in the region. In every earthquake majority of the damaged buildings are residential buildings. Most of these buildings are constructed (some times planing also)/ by local masons based on their expertise and thumb rules. But it is not true in case of developed countries.

Still we hearing news like the local masons of Gujarat are repairing (we can call it as makeup) the partially damaged buildings without consulting the professionals. We need to think that Even after visualizing a massive destruction also why people are crazy in doing so even after seeing a massive destruction?. Are they unaware of the importance of a qualified structural engineer in making their buildings stand still ? (or) Are they feel a big gap between them (ordinary builder) and a structural engineer?

As the urbanization trend in India is growing the number of multi story residential apartments and commercial complexes are have been increasing quite dramatically since the last decade in small towns also. But most of the cases it appears that the importance of a structural engineer is ignored in constructing the above mentioned structures. We are also having Construction codes and Earthquake resistance design codes. But how many Practicing engineers are following these codes and up to what level they are following. Even residential buildings in the earthquake prone regions in developed countries like US are designed/ built by Licensed structural engineers. Basic reason for this is the level of Code enforcement and code compliances in those countries. I believe that the Code enforcement and construction laws in India will also make India an Earthquake resistant and the importance of structural engineer will be well communicated to the people. Any attempts in doing so need to reach till grass root level so that people will not encourage any unlawful ways.

I think we, all civil and structural engineers need to help people in knowing

about the importance of structural engineer in designing and construction of buildings for better performance and try to break the barriers between a common man and professionals.

Regards,
Prasad Gunturi

Senior Engineer,
Risk Management Group,
RMSI, Noida- 1301.

Suren Vakil [Mon Aug 26 14:26:01 02]
I welcome this e-conference and the subject is close to my heart.

First let us not divorce structural engineering from civil engineering of which it is a specialist area. I know there are many specialised and respected engineers involved but let us step back and look at where our profession is going.

Second let us keep MNC bashing out of this. International consultants in India are all staffed by Indians and work in the Indian market. They are bringing much technology into India. No point in being defensive and bringing national pride etc we now live in a global market place and we have to live by global rules. The market is not always fair but no one person, company or country can swim against the tide.

Unfortunately ethics and hypocrisy go hand in hand. Let us concentrate on what is impementable and let us be pragmatic where necessary.

I feel that the areas we should concentrate on as Alpa and Sudhir rightly point out is
a.. Improving professionalism
b.. Implementing existing standards
c.. Putting in place a regulatory system
I hope this is a successful e-conference.

Suren Vakil

Suhas Chande [Mon Aug 26 14:52:01 02]

Isn't it high time there were more accountable agencies for a structure? Shouldn't the contractor be accountable and responsible for delivering the quality that is expected of him? Shouldn't the architect have more 'structural sense' that does

not make unreasoble demands of his structural engineer? Should ONLY ONE MAN be held permanently responsible for the safety and stability of any structure?
And after all this, for this immense and unending responsibility the engineer is the lowest paid in the entire system (1% against the 4% ofthe architect and the 15-% of the contractor).
Isn't it time all this changed, and quickly?
Suhas Chande

G.Balasubramanian [Mon Aug 26 14:58:01 02]

Dear Colleagues,
GOOD Afternoon to all of you.
I too agree that Engineers should be responsible by themselves especially in the present age of privatisation in our country.

Also I recollect that in the Structural Engineering Convention-1997 held at IIT-Chennai, the idea to start the 'Institution of Structural Engineers' was mooted, when many highly qualified and well experienced professionals were present in the convention. It is glad to note that some views in this E-conf is progressing in that direction.

Of course, the building/project plans shall be approved as per the existing practice with the only change that the "Professional/Licensed Engineer" status to the desiring engineer shall be conferred by the existing institutions like IIT or equivalent, and accordingly the screening/examination procedures shall be devised.

We still find certain conflicting views in our references for the same subject, which leaves the user to follow the cheaper view, which shall be corrected by the concerned reviewing authorities of those references.

Finally, imparting training/educating the workmen is also the duty of the Engineers, which, whenever possible should be taken care at all levels.

Yes, the above has a probable need for implementation because few of us are more familiar with "Cauvery Delta" than the "P-Delta".

Thanks with a lot of Respects,
G.Balasubramanian

Suneel Voditel [Mon Aug 26 15:06:01 02]
Prof. S Jain ,

It is indeed a great event in time now as Indian Civil/ Structural Engineers are coming closer on a very vital issue for the Society as also our profession . This is all the more relevant with our economy having been liberalized now . There would be joint ventures in Housing sector with foreign participation in near future and it is high time we set the things right .

Media reports after Gujarat tragedy mentioned of Western experts feeling aghast at blatant violation of norms in that region . You would agree ,the situation elsewhere in the country is no different .

In the absence of any Govt. Agency (attribute it to lack of political will or funds etc.) to regulate construction per standard norms of BIS (Bureau of Indian Standards) , there has been haphazard constructions in towns and cities .

Although there are some good practices being followed by large Construction Houses and reputed builders , much needs to be done .

The "mindset " of the society at large has been programmed to believe the following :

(1) that, lot of saving is achieved by cutting cost of the structure
(2) Consultants would design structure with "Extra" safety factor so it is okay to alter his design here and there .

Cosmetics in construction has overtaken strength and durability .

As there is no integrated system of analysis , design , detailing and dwgs., short cuts are common and encouraged by many . At times site supervisors mimic experts and commit blunders . As only a few structures collapse otherwise (not in earthquake) ,things go unnoticed and are "accepted".

Iron workers take crucial decisions (lap, anchorage etc.) . The recommendations of our seminars , workshops do not percolate to all strata.

I strongly feel that the Institution of Struct. Engrs which is being proposed should act as a regulatory agencyand appoint region wise local bodies to see that the norms are strictly adhered to. Let the Govt. take its own line of action ,we take ours because we all have a common goal.

This conference is indeed a great beginning .
With sincere regards ,

Suneel Voditel

Venugopal S [Mon Aug 26 15:08:00 02]

Hi Professionals,
Prof. Raghuprasad & Mr.Shirish Patel's mail clearly highlited the need for quality improvement in the field of Civil Engineering. How to Achieve this in a developing country like India where the main focus is still on the basic needs for the citizen and not on once in a while disaster's like earthquake, cyclone etc. It is high time that the premier institutions(IIT's & IISc) make an attempt to form a professional body, which evaluates the professional abilty of Practicing engineer ,like MIStructe & FIstructe awarded from Institution of structural engineers, London. When this is implemented Industries will make it mandatory in their selection procedure. And also in the mean time this will become statutory legislation by all organizations involved in major infrastructure Projects.
So I request the Civil Engineering Professors(IIT's & IISc) to make a trend setting towards identifying Quality Engineers by establishment of a professional body.

Thanking you and with best wishes

S.Venugopal
Product Engineering/Fossil Boilers
Bharat Heavy Electricals Limited
Tiruchirapalli, Tamilnadu.

Lakkireddy Seshi Reddy [Mon Aug 26 15:21:00 02]

What you are telling is exactly correct...We can form a body named Association of Structurtal Engineers...We can not wait for somebody to form it and develope it...We can form this one voluntereley...Main object of this association is to certify design enginerrs like in US...Initial stages people may not accept it..but later everybody will accept it after giving wide publicity in the interest of public...The basis of certifying a person as a design engineer should be not only construction knowledge,experiance, etc but also on ethics...Financial problems can be solved by the examination fees...think about it..and if possible we can form foundation of the organisation right now in this week...
Thank you..
Bye
L.Seshi Reddy

Prasad Babu [Mon Aug 26 15:34:01 02]

Dear all,
I really glad to participate in e-conference. As we know the ground truth information is prime importance for any construction. But unfortunately no agency in India recognising geologist for that purpose. I feel this is disadvantage in India. I really felt very sad on 26th Jan.Earthquake in Gujarath. I hope in future geologist may recognised as not only a resource extractor but also an earth protector. This is my dream. Fortunately IIT kanpur offering M.Tech in Engineering Geology. It is better to start in all civil engineering departments so that people can recognise the importance. This is my idea and dream.

Thanking you
yours sicerely

G.Prasad Babu

S. Bhattacharya [Mon Aug 26 15:41:01 02]

This is Mr Subhamoy Bhattacharya from University of Cambridge, U.K. researching on in "PILE Instability during earthquake liquefaction".

It is true that foreign multinational companies are involved in almost all projects. For example, Yachiyo Engineering Company (Japan) [with subconsultant Consulting Engineering Services (I) Ltd, CES] is currently involved with the flyover projects in Calcutta. They are getting around 15% fees. On the otherhand for a similar job the Indian consultants will get or quote 3 to 4%. But there is a catch

1) The project is funded by OECF (Overseas Economic Cooperation fund) Japan.

2) The foreign company only has few enginners and they hire all engineers from India.

So i am not totally convinced that the Indian engineers are incapable of building flyovers as similar flyovers are being constructed in Delhi,
Bombay solely by CES alone.

Average salary of a structural engineer in India is Rs12,000 to Rs 15,000 with 2 to 3 years of experience whereas a similar software engineer
(educated as a civil engineer in College but trained as a software professional) will earn Rs30,000 to Rs40,000. This inequality in pay
attracts the most smart talented Civil engineers away from the profession. Those

who join the civil engineering profession join half heartedly eyeing opportunities for break through in I.T industry and often leave with 2 days notice. The civil engineering companies thus recruit more engineers than required for a particular job and hence has to pay less.

I am sure if Foreign and Indian consultants are paid alike -- the Structural engineers will be at par in salary with the fellow Civil-transformed-software engineer.They will be proud to be a "structural engineer" and the society will benefit immensely. I notice in the new generation "WE ARE NOT PROUD TO BE A CIVIL ENGINEER".

regards

Subhamoy Bhattacharya

B S Narendra [Mon Aug 26 18:11:00 2002]

dear sir,
i thank the organisers for the econference. it is a success with so many people right from distinguished professors to practising engineers from reputed firms joining. but i did not find any issue related to earthquake geotechnical engineering. i think that even geotechnical engineers should also be included in such a conference. i hope that at least in the next econference someone will write about it.

REGARDS
NAREN

Ramchandra Subanna Purohit [Mon Aug 26 19:16:00 2002]

This is a great experience we are getting through this new concept and becomming closer and closer.

I fully agree with the views of suneel and we should see that the cosmetics of the building shall not overtake the strength of the building.

sincierly
Ram Purohit.

Ramchandra Subanna Purohit [Mon Aug 26 19:34:01 2002]

I am fully agree with what Mr. Shirish Patel has told. This is the right time to think. I am experiencing a great pleasure in communicating teh big stawlworts in

the proffession. I request all to request Mr.Shirish Patel to come forward very aggressively and do somthing to this proffession.

yours sincierly
Ram Purohit.

Dipak shah [Mon Aug 26 19:53:01 2002]
Hi Kamalbhai,

The design checking cell-formed of lis.str.engr.is a eye-wash at least in AUDA/AMC in Ahmedabad-Guj.Majority of them are with limited knowledge and working with us only. Its' funny to be a member of such cell if one wants to practice under same juridiction.
2) design details metodology must be as per BIS only.
3) Any package which yield correct analysis/design result should be acceptable(without any bias).Further to that as a str.engr.one must have ability to convenience true design methodology.

Thanks,
Dipak shah

Nishith Desai [Mon Aug 26 20:07:00 2002]

G. Prasad Babu,
You are correct..
Any idea for petrographic analysis.

nishith desai

Sanjeev Hanumant Mangoli [Mon Aug 26 20:50:01 2002]

Dear Friends ,
where are we all the average salary with 2 years experience is not more than 5000 to 6000 today many parctising structural consultants are ready to work for 15k after an experience of 15 to 20 years any takers you will get ample if any company is ready for recruitment with a big banner why not we all togather take over some of these foriegn
company's give a thought

Sanjeev Hanumant Mangoli [Mon Aug 26 20:51:01 2002]

This reply to some letters especially Mr. Rajes Samarth Already in Mumbai there is a body for Structural Engineers
we need to strengthen the same Dr. Jain is aware of the same

Pankaj Gupta [Mon Aug 26 22:03:01 2002]

Hello Colleagues,

Let me tell you an anecdote, which I think highlights the crux of the problem within our practical professional practice.

This is a part of my conversation with a builder in Delhi, who wanted me to design a 4 storied apartment block for him :

Builder: Mr.Gupta, we are not like other builders, we do not compromise on the structural aspects, we use good quality material, we do not save on steel....blah...blah..., and we also pay a good fee @Rs 4 per sft. Me: Good to know, it will be a pleasure working with you (Hope against hope in my heart). Builder: But I have some requirements, as a builder, I need those to sell my flats Me: Yes please tell me of your requirements Builder: There should be no downturn beams, as they spoil my rooms, you can use as much steel in the hidden beams, which can be upturned by 2" Me: But Sir, there is no such thing as a hidden beam, and the spans are quite big, I don't think it is possible to manage without downturn beams Builder: You will have to manage somehow, and also all my columns have to be 9"x9", otherwise they also spoil my rooms Me: But sir, for a 4 storied building with spans in the range of 20', the columns cannot be managed in 9"x9", and that too in Delhi which is a high seismic area Builder: Ah, I forgot to tell you that I want my building to be
earthquake-proof, as it is a good selling point for my flats nowadays after the Gujrat earthquake. You are an IITian & a brilliant structural engineer, you can put as much amount of steel you want, but you have to manage in 9"x9" columns, and also please remember that we do not use reinforcement of greater than 20 dia. as it is difficult to bend. You can use as much steel as you want, we are very conscious about safety.

It was at that point that I decided to tell him, sorry I cannot fulfill your requirements, and I cannot do the job, as I find myself totally inadequate. He was shocked that I should refuse to do the job, and that too when he was willing to pay a good fee.

One year later, when I was passing that area, I saw a brand new building fully

occupied standing at that site, obviously he had found another brilliant structural engineer who could fulfill his requirements.

You can easily replace the builder with any number of Architects. Every requirement has become more important than the structure.....beam cannot be so deep because of AC ducts, and the HVAC guy cannot reduce his duct size, the Architect cannot increase his building height (but obviously I can reduce my beam size).....columns cannot be more than 230 wide, they jut out of the walls and spoil the room or the external elevation.....and so on & on & on.

I sympathize with Mr. Barua of Gauwhati, who after 45 years is about to leave his profession as he is fed up. But I love my work too much to do so. So I continue arguing with the Architects, till they get fed up of me, and after 2 or 3 projects with me, find a more harmonious engineer (who can do what they want (read dream or wish)) and then I go on to find new Architects to argue to. Although I must admit that I have as my clients 3 Architects (in my 12 years of practice) who after initial arguing have listened to me & have adopted to my suggestions & have not run away, and believe it or not they now use 300 or 345 wide columns (and that too in housing apartments). This is what gives me hope & courage to move on and that too without compromising my moral or professional ethics.

I will try to address the flip side of the coin in my next post (Part Two). I hope I have not taken too much of everybody's precious time.

Regards

Pankaj Gupta

Jagadish Kori [Mon Aug 26 22:27:00 2002]

Sir,
Realy I am very much thankfull to IITK for this conference through NICEE.
Thanks lot.

Jagadish. Kori

Rajaram [Mon Aug 26 22:47:00 2002]

So long as we have decision makers who are ignorant of the subject on which they have to give orders, and also suffer from mental slavery that foreigner who ruled us and designed a steel frame to control us and thought processes- only can be relied upon, coupled with lack of self-esteem even in our engineers-

causes anguish to youngsters of our country!

RAJARAM

Arvind [Mon Aug 26 23:08:01 2002]
Dear friends,

Sorry for joining very late. For the next two days I will be joining at the same time, hence kindly parden me if I may repeat the same topic.

I must congretulate Alpa Sheth, Dr. Sudhir Jain for this e-conference. I must also congretulate Mr. Shirish Patel for giving proper direction to the `Professional Issues in Structural Engineering in India'

I agree with most of the discussions going around, meanwhile I would like to draw the attention of the members to the following:
* Be Selective: There are always enough jobs for everyone, provided..... One is selective about them. Selective means remuneration wise and Also number wise: take only you can chew!! Fewer but properly paying jobs are worth many but less paying jobs, and this will reduce your overheads also, and increase take home!!
* Learn to say NO to bad paymasters or refuse low paying jobs..... It may take courage, but once you are over with it, results are astonishing. If your services are good same people will come to you again!
* Send proper feeler to the community / engaging party that your services are not cheap, but they are worth buying!!
* Poor education, with no continuing education after graduation: The continuing education in our country is pathetically neglected and scarce commodity for practicing engineers. Academicia feel that it is only possible to educate candidate in engineering discipline is by class-room training!!

Please give attention to following statistics:

Out of 100 students in engineering undergraduate studies 15 % go abroad, another 15% shift to other courses like management etc., 60 % join Industry in various capacities due to financial commitment, remaining 10% join for higher studies, mainly to appear for UPSC exams or pass the time till admission to foreign universities materialise.

Now this 60% which is absorbed in Industry does not get chance to upgrade their knowledge unless the employer finds it necessary, or the job makes a harsh demand on them. Thus the industry which you and me are talking is outdated on this date!!! without the exposure, without the necessary wisdom etc. etc.

How are we coping with this problem? Can some one day seminars fill this vast gap in our prepardness for future challenges? Is it possible to educate vast chunk of engineers in our country by short term courses as being done by some individuals?

Renewed, concerted efforts are required on all fronts to achieve this daunting task, hence brace all!! The certification of engineers is a must, and the periodicity of this certification should be defined so it is mandetory to keep up to date knowledge in the subject under investigation. This will lead to better awareness as a control mechanism and eventually failure may lead to cancellation of licence to practice.. · No accountability

Professional Indemnities are going to stay in future! Hence each one of us will have to be heavily insured, thus for all this enough and good amount of remuneration is required and it will certainly be not possible for every one to take more jobs at throw away prizes and pay huge insurance premiums! which you and me may not be always able to pass to the client!!

With warm regards.....Arvind

Arvind [Mon Aug 26 23:15:00 2002]

Dear Pankaj,
It is hard to find practicing structural engineers like you, I must congretulate you on your lively and thought provoking mail.

With warm regards.....Arvind

Alok Bhowmick [Mon Aug 26 23:18:00 2002]

Dear Collegues,
Sub : Professional Issues in Structural Engineering in India
I agree with Mr. Shirish Patel that we need to engage ourselves much much more in issues of civic interest, and also take serious interest in structural designs in order to improve our status in civil society. As structural engineers, we are morally bound to adopt loss prevention practices in structural design that helps to reduce the professional
liability losses and aid us in meeting our responsibilities to clients.

With the fast track nature of construction being practiced more as a matter of rule rather than exception now a days, the Consultants are under tremendous pressure to produce designs and drawings in bulk on fast track with the

computer aided techniques. I note with regret that now a days, due to the fast track nature of jobs and due to easy
availability of computers, the machine is being grossly in misuse by the young designers to produce bulk designs in 91fast track92 with little checks. The young engineers are learning more and more of computer analysis and extensive use of spreadsheets but very little of the art of structural design and detailing. With the result, they are loosing interest in the profession and are switching over to more glamorous IT industry.

This problem is further compounded by the fact that, the management often rewards the design engineers for producing 93more quantity94 and often leaves them 93 un-punished 94 for producing 93poor quality94
(there are of course exceptions). The focus in such situation invariably shifts from important design issues such as 93better proportioning of the structural dimensions, design for better construct ability and simplification in reinforcement detailing94 to 93mathematical computation of bending moments and shear forces 94 and
to 93 satisfying the codal criteria of limiting stresses upto last 1% accuracy 94.

I feel that it is high time that we Consultants realize the gravity of the situation and rise to the occasion and organize and discipline ourselves as a professional. To my mind, this is the only way to move forward, rest all will automatically fall in line.

Thank you

Alok Bhowmick

Mohan Gupta [Mon Aug 26 23:31:00 2002]

To, all concerned,

Though human beings are aware of the detrimental effects of earthquake, the measures taken to build earthquake resistant structures are significantly lacking.

A substantial part of this negligence is due to lack of thorough knowledge amongst the engineers and architects, who are responsible for most of the construction activities. The subjected of earthquake engineering is still neglected in the curriculum of most universities at the undergraduate level. Most practising engineers and architects do not undertake post graduate studies, usually where this subject is taught.

There is a need to introduce this subject in brief at the first year level for students

of all branches, and a complete subject for civil and architectural engineering students. Until and unless the planners and designers are not fully aware of the techniques for earthquake resistant construction, they may not be able to convey these techniques fully and properly to the society.

Likewise, for the passed out engineers and architects, currently engaged in consultancy or teaching work, some refresher courses are needed. These refresher courses should be of short duration and free of cost for them, else one should not expect a overwhelming response. This is the reality!

A question that needs to be answered at this stage is- How many Engineers and Architects have build their own houses by following all the rules for earthquake resistant construction?

mohan gupta