

e-conference on Professional Issues in Structural Engineering in India

(26-31 August, 2002)

hosted by

National Information Centre of Earthquake Engineering
Indian Institute of Technology Kanpur

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Proceedings:: Day 6

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Moderators [Sat Aug 31 00:20:01 2002]

Dear Colleagues:

We are now left with less than twenty four hours to close this econf (The conference will stop accepting messages at 10 PM IST on August 31, Saturday).

It is heartening to see several individuals volunteer their time to organize things. For instance, Mr. Shekhar Ghate has offered to organize a retreat for the young engineers and some others have offered to assist young engineers should they be approached. We look forward to the first retreat taking place in a reasonably short time.

Some specific issues have been raised about the licensing and engineers' bill. In fact, we understand that in the United States (a) all the states have licensing of "Professional Engineers" which is a general civil engineering license, and (b) a few states (perhaps less than a dozen) have an additional license of "Structural Engineer" that one must have for practice of structural engineering. In fact, some professional bodies in the US are lobbying for the other states to also adopt the system of "Structural Engineering" license. Clearly, we in India should have started developing the licensing systems some forty years back, and in that sense we have a lot of catching up to do. There are plenty of complexities in licensing that require careful considerations and there are bound to be teething troubles. If this e-conference has helped identify many of the issues, we all should feel that our time on the e-conf was well spent.

An interesting issue has been raised today as to what is expected of a fresh engineering graduate. It is often said that the good universities train their students "for their last job, and not for their first job". It should be perfectly fine if a civil engineering graduate cannot design a structure on graduation as long as he has strong fundamentals, broad background, and proper attitude. With these tools, it should not take him much effort to pick up any new engineering job.

A very clear need is being articulated for more such e-conferences, discussion groups, electronic bulletin boards. We sincerely hope that something positive may emerge on this front wherein someone will volunteer to organize these on a reasonable scale. We are still looking for some viable proposals from our e-conf participants. In fact, even the continuing education courses can be conducted through the electronic media: any takers??

We seek some response to the following issues:

a) Will some knowledgeable persons throw light on the legal aspects of the criminal and civil cases against structural engineers and others in Gujarat after

the earthquake disaster last year. We believe that the court verdicts on these cases could set crucial precedence for the future which will have important bearing on the profession.

b) We all agree that the academia and the industry should interact constructively and continuously. A lot is to be gained by both the sides from such an interaction. Why then the interaction between the two is practically absent? What kind of initiatives can be taken at our individual level to tackle this problem?

c) Are there some specific kinds of resources (say, codes of other countries, publications of this or that kind, specific types of software, etc) which are not easily available to the professionals in India?

d) Are there some specific areas of engineering in which training needs are particularly urgent?

We also urge the members to give some thought to the fact that we have numerous (perhaps too many?) professional bodies for civil engineers in India. Just to name a few: Indian Buildings Congress, Indian Roads Congress, Indian Institute of Bridge Engineers, Indian Concrete Institute, Indian Society of Structural Engineers, Indian Society of Earthquake Technology, Association of Consulting Civil Engineers, Association of Consulting Engineers, Indian Geotechnical Society, and so on and so forth. Do we really need so many societies? Should there not be serious attempts to consolidate them so that these could emerge more effective and stronger?

Have a great day and happy e-conferencing.

Sudhir Jain and Alpa Sheth

Dhirendra Tripathi [Sat Aug 31 08:28:01 2002]

Namaste All,

As we near the end of this conference one feels how much the others in the construction industry (especially the end user "buyer") would gain by merely observing it in progress.

Most of the exchanges haven't been very technical so even a non-engineer would be able to understand the main issues.

Perhaps after the initial issues have been dealt with and follow-up moves initiated towards at the end a conference such as this should have a segment (

say an open-house) open to all interested members of the public (with special invitation to buyers of homes, builders, architects, contractors, masons) so that understanding and networking can go beyond the sub-set of structural engineers.

A lot has been written about enlightening the public, this could be one way.

regards,

Dhirendra Tripathi

Durgesh Rai [Sat Aug 31 08:28:05 2002]

Dear Colleagues,

It has been heartening to see that there is a strong yearning to push novel measures in our profession to purge the ills of yesteryear. It appears that we are indeed in a moment of crisis, and that is good news because it may act as an agent for change. The disasters such as Bhopal and Ahmedabad are manifestations of widespread and deeply rooted carelessness and ineptitude in our engineering practice. We definitely need a reasoned strategy from thoughtful professionals if a change is to take place. It is indeed a pleasure to read various voices on this e-conference on the issues that are vital if our profession is to reclaim our lost glory.

The topic of education and aspirations of young engineers has been of considerable discussion in the recent postings. It is apparent that industry people want students to be trained hands-on in practical ways so that 'they hit the ground running'! As Kiran Akella and Navin Verma pointed out that the primary goal of four-year education is to make the student engineers to be creative and imaginative and equip them with necessary tools of mathematics and science which are needed for the problem solving. Taking Alpa's concerns in to account, what we need is a healthy mix of theory and practice. But only so much can be done in 4 years! They must have well rounded background to face the real world problems which are intrinsically multi-disciplinary in nature. Subjects other than engineering such as those from liberal arts, communication, etc. should become part of their curriculum if they have to become leaders of the profession and serve the common good.

If the profession has to continuously encourage new and bold innovations, we need engineers which are committed to lifetime of continuing education. The industry has to accept this reality that they not only have to provide the on-job training to young engineers, but also invest in their further education. Many

things of the trade can only be learnt on the job.

The challenge is immense for attracting bright and talented individuals to the profession but keeping them happy in the profession is a far greater challenge. I think, young engineers of all times have troubles with the uncertainties about their career. It is okay if some of us would like to romanticize about the past! Young engineers subscribe to widely different aspirations from their career like any other group of individuals. Some want exciting technical challenge while some dream about large sums of money. There are idealists who want to save the world while some have entrepreneurial ambitions. Some wants to work in academics while others prefer industry or government service and so on, so forth. Clearly, the goal is nebulous and the profession has to accommodate all and make room for their growth. Because we need this diversity. We can not ask them to give up their dreams, we can at best only suggest them to be flexible about their aspirations as they enter in to their career. There can be alternate routes to their career goals and furthermore in future the profession is going to be more mercurial that what it is already. There should be room for all!

Even in this e-conference, educators are flooded with complaints of various sorts. Genuinely so for the most part. Educators have long been undersupported in terms of resources and that makes a large of them conservative in approach, resistant to reforms. Education can not flourish without popular regard and government support. And now governments cutting down on their share of support to technical education, the remaining hope is the industry which should come forward to lead the change.

Durgesh Rai [Sat Aug 31 08:29:01 2002]

Dear Participants:

I join you once again with some thoughts on issue of morality, ethics and discipline. My observations are based my experience in the profession and drawing on other people's experiences gathered from personnel communications as well as from letters sent to editors of various professional journals.

In the aftermath of our glaring engineering failures, it is not too difficult to fall back on the lack of morality for an apparent root cause. We all accept that morality is needed, but it means different things to different people. We are a diverse group of people with our individual notions of 'right' and 'good' - even on matters which are strictly technical. Issues related to personal morality are far more complex. Such an ambiguous concept alone can not help. Laws, regulations, codes, etc. have been seen to work and legal liabilities are designed to cover infractions of those laws, regulations, and codes. These are the only

workable substitutes for such idealistic concepts of “moral or social responsibility.”

For strict implementation of these regulations, we need a strong coercive power primarily sponsored by the government. The enforcer-engineers have to be totally honest and vigilant for the system to work. In an era of eroding standards and rising levels of dishonesty and corruption, we need to exercise exemplary efforts to ensure that only inspired, upright and committed engineers join these regulatory public services.

Of course, we want to be regarded as good engineers of high ethical standards but we need to be pragmatic too. The experience of registration with professional bodies and compulsory adherence to their codes of ethics has not been too encouraging. Courts have often questioned the powers of these bodies to discipline erring members. Just the fear of losing the license and associated ignominy may appeal to a large group of engineers with a conscience. Even in the US, less than one-fifth of all engineers are licensed since licensing is regarded as something needed only for those consulting engineers who file plans with municipalities. Many American engineers believe that licensing is not for creative types and that the process of licensing is pretentious, undemocratic and redundant, especially since the PE examination is ridiculously easy and does not reflect professional competence.

In spite of all these criticisms, government-sanctioned licensing does have an appeal in improving the quality of engineering practice and ensuring public safety. But it is not a panacea if the history is worth anything!

Durgesh Rai

Durgesh Rai [Sat Aug 31 08:29:04 2002]

Dear Colleagues:

It is healthy to talk about the dark side of the profession. There is no sense in pretending that the fault lies elsewhere. But too much of deploring the lack of commitment, training, aptitude, etc. of fellow engineers is of no help. Some criticism is in order, but instead we need to empathize with them for the difficult situations in which they work. The need of hour is change that we all favour. Who will effect this change? Are we waiting for a hero to emerge? Is it a realistic expectation?

Engineering, particularly civil engineering, is taken for granted. It is by and large anonymous profession. When was the last time a civil engineer caught the

imagination of public at large? We have no professional heroes who can galvanize the profession. In the rapidly changing technological world even the fundamental breakthroughs are not much cared for. How many of us know who were the inventors of the integrated circuit, which began the second industrial revolution and without which this e-conference could not be possible? They were the first to get Draper prize, equivalent to Nobel prize in engineering, but very few people know about these heroes.

We can not wait for heroes to emerge. What we need is that the engineers become leaders. Good engineering can not take place in isolation. In a democratic society the profession need to engage and educate politicians and inform the citizenry. It is essential for any change to take place. Recall the role that the courts (informed judges) have played in implementing pollution control norms in Delhi. We need engineer-leaders who can remove ineptitude in politics, engineer-leaders who can perform public advocacy with astute sophistication, engineer-leaders who can ensure that we can restore the lost pride and so on. We need to move from rhetoric to reality. And this is what concerns Prof Indiresan that even the issues related to engineering is handled by other than engineers. If our profession has to held in high esteem in society, we have to nurture and promote leaders among ourselves and make efforts that potential leaders join our profession.

Durgesh Rai

Jitendra Bothara [Sat Aug 31 08:31:00 2002]

Dear All,

Ownership: The issue raised by Suren Vakil about offer of management share to its engineers is a crucial if the consulting companies want to work as an instution rather than a family business. I have seen how reconized firms develop and die (in Nepal) because consulting firm could not be transferred as ancestral properly (in our part consulting companies are also property to be transferred to children of its owner regardless of his caliber). Consulting companies always complain that young enginers are very unstable as their tenure is very small. They quit the job and their invetment on training is mere a loss. But the problem is associated with feeling of insecurity with young engineers. I am my self an example. After my graduation, I worked for a consulting company for some six yrs. but later on started to feel very unsecure as I felt my job is always up to the employer. Consequently I left the job, of course not profession. I feel pity of my first employer.

Here, in NZ I came with interaction with few of the leading consulting

companies and discussed with them about this issue. Their version is: "company is more important than person." In these company, who ever joins the company gets a certain % of share after certain yrs. of work in the company as a employee. As he progresses his share keeps increasing. However, at the time he retires he must sale all his share to company. In brief, all the comany employees are company owners. It gives the employees strong sense of ownership and stability to company itself.

Some sort of this practice may help our consulting companies live.

Regards,

Jitendra K Bothara

Jitendra Bothara [Sat Aug 31 08:31:04 2002]

Dear All,

Training to young engg: One of the problem with young engineers in our region is on-job-training after formal education in university. Very few fortunate engineers do get some sort of guidance from their seniors in real world practice and unfortunately most of others learn by making mistakes (if they are very keen to learn) and many more end up doing mistakes for whole life as we even do not have practice of peer review. I feel, it is really pity and most difficult situation for a young engineer. As they have no one to guide, learning process is too slow as he keeps wandering and many times too erroneous.

What I found here in NZ with my interaction with consulting firms, seniors basically work as mentor and groom/ mold a young engineer. They give them enough reponsibility, help them in conceptulization/ materilization of project, and give oppertunity to work with them. The new engineers need to be prepared to defend his design to answer what he is doing and why. It gives him a lot of confidence mistakes are checked in time. The learning process is fast (I guess what we learn in 10 yrs without supervision of a genuine senior, they learn in three to four yrs.) and is based on stronger ground.

With regards,

Jitendra K Bothara

Sushil Kumar Goel [Sat Aug 31 08:34:01 2002]

Hi! This is Sushil Kumar Goel from Singapore...

The practice here is to have registered Professional Engineers by P.E. Board (of country) & all submissions are undertaken only through registered ..PE./QP (Qualified Person).may be an employee of a firm..or a person...If firm, moment he leaves frm, during currency of work, name change must takes place by another QP..

Hope this may serve as the right practice at our place as well provided we can so strictly implement it..

Regards,

Sushil,

Indrajit Barua [Sat Aug 31 08:34:04 2002]

After almost 45 years in the profession, I am now ready to quit, not because of age, but because of disgust. The profession, along with its sister profession, architecture, is in shambles.

There are just too many architects and civil engineers in the country. The result is competing for fees and not on the basis of merit -- consequetly, badly planned and designed buildings badly constructed. Schools of architecture and (civil) engineering should cut their intakes by 50% for the next 10 years. Then, and only then, will the profession improve.

Indrajit Barua

N. N. Javdekar [Sat Aug 31 08:34:08 2002]

Regarding A & B points raised by Mr.Kare:

Every prequalification process generally involves a predetermined marking system . The predetermined panel of selectors allots marks . The list is based on the marks. It is then approved by the Authority. It is then to be strictly followed , to be fair.

Regarding General Trends:

As long as the prequalification criteria are concerned, any intending participant can seek explanations, be heard and if convinced of any malafide intentions or injustice, can seek legal redressal, generally through writ petetion. This is the only action available.

N N Javdekar

M. Hariharan [Sat Aug 31 09:02:02 2002]

I have long appreciated Prof. Indiresan's insight and articles. In this case, however, I would beg to differ, in a light vein.

One objection that has been repeated ad nauseum is that Dr. kalam is only an engineer. Few of those critics have paused to ponder that such an objection

> is an insult to the engineering profession.

> Few politicians command much respect these days. Yet, if media, comments

> were to be believed, when it comes to teh highest position of honour in the

> country, barely literate, even a shady politicians are to be preferred to successful engineers. That reveals a contemptuously low opinion of engineers.

May I take the liberty of interpreting the media opinion otherwise? Being only an Engineer, he is unfit for the post because in today's environment, only ignoramuses can occupy these posts. Only then can the post be misused. It reveals a contemptuously low opinion of the post of the President, rather than of the Engineers.

In a similar trend, there was an objection that having been a professional and Administrator, he has no experience in constitutional matters. So he cannot discharge the duties of a President. What rubbish!

I think the Constitutional Post of President should be reserved for a non-political professional figure, who commands the respect of the people in general.

Incidentally, most people would have noticed that practicing professionals rarely get the "Padma" awards, while they are freely available to sportspersons, movie stars, singers and the like. This is where I have a greater objection. Contribution to Society is not recognised even by Government as superior to sports or music. I couldn't care less about the media opinion.

The British respect their professionals better, I believe. There are many "Sir's" in the Civil Engineering Consultancy Profession alone, and far less number of Cricketers.

Dr. M. Hariharan

Atul Mehta [Sat Aug 31 09:12:00 2002]

RESP. PARTICIPANTS,
AS POINTED OUT BY DR. JAIN , I AM GIVING SOME DETAIL WHICH OUR COLLEAGUES FACED AFTER EARTHQUAKE. WHERE EVER BUILDING COLLAPSED,AUTHORITY SERCHED NAMES OF ARCHITECTS/ENGINEERS/STRUCTURAL ENGINEER & FILED COMPLAIN AGAINST THEM.NOBODY WAS BOTHERED ABOUT LEGAL PROCEDURE.POLITICAL PRESSURE WAS AGAINST BUILDERS AS WELL ENGINEERS. COMMON MAN WAS VIEWING BUILDERS & ENGINEERS AS TWO SIDES OF SAME COIN.ONCE THERE IS COMPLAIN,THE PERSON HAS TO SURRENDER & TO GO FOR SOME DAYS IN JAIL.IF HE DOES NOT COMES , AUTHORITY SERCHES HIM AND HIS FAMILY MEMBERS WERE ALSO INQUIRED.SINCE THE CRIME WAS NON BAILABLE, THERE WAS NO OPTION FOR ENGINEER EXCEPT TO SURRENDER. AT PRESENT,THE CAESE ARE PENDING IN COURT FOR ITS TIME TO COME.MEANWHILE, SAMPLES OF SOME BUILDINGS HAS BEEN SENT TO TESTING LABS. FOR CHECKING.IT WILL TAKE ITS OWN TIME.

AT THAT TIME COUNCIL OF ARCHITECTS OPPOSED THIS AND SUCEEDED FOR THEIR MEMBERS.BUT IT IS VERY SORROWFUL THAT NOBODY FROM ENGINEER'S INSTITUTE CAME FORWARD TO PROTECT HUMAN RIGHTS OF STRUCTURAL ENGINEERS. MANY OF US FELT THAT WE ALONE ARE VICTIMS OF CASES.AT THE SAME TIME MANY BUILDERS WERE FORMING ASSOCIATION & STARTED FIGHTING FOR THEIR OWN. I FEEL THAT WE ARE NOT ABLE TO BE UNITED FOR ONE OR ANOTHER REASON.IF WE UNITE,EVERYHING IS POSSIBLE.BUT IF DONT UNITE,WE WILL BE ON BACK SIT. ANOTHER ISSUE IS ABOUT QUALITY OF CONSTRUCTION.MY EXPERIENCE SAYS THAT IF GOOD QUALITY CONSTRUCTION WITH PROPER DETAILING HAS BEEN DONE,THERE ARE VERY RARE CHANCES OF FAILURE EVEN IF IN SEVEAR EARTHQUAKE.

MEANWHILE I CONGRATULATE DR.JAIN & HIS TEAM FOR THIS MARVELLOUS E-CONF.SINCE WE ARE PALCED AT REMOTE CORNER OF INDIA, IT IS ONLY ALTERNATE TO BE IN TOUCH WITH RECENT TRENDS. I EXTEND MY WHOLEHEARTED SUPPORT IN FUTURE WORKS.

ATUL MEHTA

Mehta Atul [Sat Aug 31 09:31:00 2002]

DEAR PARTICIPANTS,

IF NATIONAL SOCIETY OF EARTHQUAK TECHNOLOGY OF NEPAL CAN DO GOOD JOB,CONSIDERING OUR MEMBERS STRENGTH,WE CAN START WITH SOME GOALS WHICH GIVES US SATISFACTION OF SOME SOCIAL SERVICE AS WELL AS OUR PROFESSIONAL IMAGE

ATUL MEHTA

Sanjeev Hanumant Mangoli [Sat Aug 31 09:31:03 2002]

Dear Friends,

The following message is also equally important. The deterioration is because of some the so called senior practionors who are tottally unwilling to impart the knowledge. I have alsoe mentioned earlier that the actaul people participating are hardly 1% of the so called practising engineers. WHere are the balance?

Think on this also. The balance will become the decision maker so I request to please create an enviroment 1st. To this I agree to Ms. Alpa's suggestion of creating a website with full of resourses and help everyone junior and senior engineers to resolve the problems.

This will be the correct approach as per my opinion.

Thanks

Yours
Sanjeev

Arvind [Sat Aug 31 09:41:00 2002]

Dear Dr Sudhir K Jain & Prof Mahesh Tandon,

Thanks for a very compresive overview of the situation.

I have few comments to offer:

(D) Professional Indemnity

"Structural Engineers are taking risks much beyond even their own comprehension."

As a civil engineers, one risks being sued every time one works on a project. And regardless of how well one has done the job, one has to spend valuable time and hard earned money to defend oneself in a lawsuit

This is what scenario in USA, but I feel it is going to invade Indian scenario shortly. Then everyone needs how to protect self interests.

ASCE, Americal Society of Civil Engineers has a very useful programme to switch liability coverage. The programme is basically for ACSE members only and covers following issues:

1. Ideal Protection for Small Firms
2. Expert Legal Consel to represent you
3. Optional Defense Coverage
4. Licensing Board defense coverage
5. Sensible deductibles * limits of protection
6. Affordable claims-made coverage
7. Coverage for employed engineers

The details can be had if all visit the website www.ascinsurance.com or www.asce.org

Also ASCE has ways to cover Designs for your future and following are covered in the scheme:

1. Term life
2. Disability income
3. Comprehensive health care
4. Catastrophe major medical
5. High-limit accident
6. Member assistance
7. Lond Term care
8. Medical suppliment
9. Short term medical
10. Gateway internation, accident and medical insurance
11. Small business group insurance
12. Catastropic disbility
13. Professional liability programme
14. Financial services.
15. cancer Expense plan

The further details can be had from website www.asceinsurance.com

With warm regards.....Arvind

Rajiv Sharma [Sat Aug 31 09:47:01 2002]

Hi Kiran:

What you have observed is perhaps a problem with an individual only. I have seen many senior engineers listening to younger engineers carefully and telling them how their thinking was flawed. So I believe it is not a serious problem of the profession. Please keep in mind that a younger person can learn more by keeping his eyes and ears open, mouth tightly shut and emotions under control. In the beginning when he has hardly got his feet wet he doesn't have enough knowledge to judge others using his own benchmarks!

Truly

Rajiv

Arvind [Sat Aug 31 09:53:02 2002]

Dear Dr Sudhir K Jain & Alpa Sheth,

The idea of continuing education through e-mail is an exciting idea!

In fact I would like to remind you that ASCE, American Society of Civil Engineers has several programmes on Distance Education and Net-enabled also. The details can be had from www.asce.org

With warm regards.....Arvind

Prof. Anjur R Chandrasekaran [Sat Aug 31 09:53:05 2002]

Dear Prof. S.K. Jain,

I wish to bring to your attention an aspect of design using IS Code. I hope you can properly frame the issue for debate.

A TG Foundation was apparently designed according to the provisions of the appropriate IS Code. After commissioning the equipment, resonance of the system in operating frequency range was noticed. It became a dispute between the owner (blaming the supplier of equipment) and the supplier of equipment

(blaming the owner for the foundation). [usually the agencies supplying the equipment and the agency constructing the civil structure are different]

I was brought into the picture and I could positively conclude { based on System Identification Studies of the actual structure) that IS Code was inadequate and faulty. That IS Code had even specified the analytical modelling to be adopted.

Unfortunately, I cannot send you the report as it is confidential. That dispute had to be resolved as an ACT OF GOD !!

The question for debate is "WHAT ARE THE LIABILITIES OF BIS" Can they wash their hands away in any dispute.

As a corollary, I feel that some of the damages during Kutch earthquake could be due to deficiencies in IS:1893-1984 and not entirely 100% due to the so called greedy contractors.

Is there any approving municipal authority competent to check the design ? Are the structural drawings and construction logs available for inspection?

I know of a recent tender from Delhi Jal Nigam wherein they want the structures to be retrofitted but they have NO DRAWINGS at all in their possession and want the designer to guess.

Sincerely
ARC

Suryanarayana Saripalli [Sat Aug 31 10:31:01 2002]

DEAR PROF SUDHIR JAIN SIR.,AND ALPHA SETH ARE REALLY TO BE CONGRATULATED ALONG WITH ALLPARTICIPANTS

DEAR SIRS

ALL ASSOCIATIONS SHALL BECOME A TAG TO ONE ASSOCIATION MADE LEGALLY., YU KNOW WHY.,REMEMBER,FIRES IN DELHI BUIDINGS.,BHOPAL DISSASTER,CHASNALLA MINE.,HPCL,VIZAG,BLAST.,Etc. need NO MORE EXPLANATION FOR EXPERIENCED PERSONS. WE ALSO NEED VOCATIONAL EDUCATION AT 10 TH [PASS/FAIL] IN ENGG FIELDS WE ALSO NEED AT 8TH2 YEAR MASONARY /CARPETARY ETC.,COURSES AT BACKWARD AREAS OF COUNTRY WHERE FROM WE ARE GETTING OUR WORKERS.,

WE NEED EXCLUSIVE INSTITUTE TO DO RESEARCH IN FONDATION

ENGINEERING IN COASTAL AREAS WITH REFERENCE TO DRAG AND SOIL, AT CYCLONE TIMES., YOU KNOW WHY WE NEED IT/ AND WHO CAN FUND IT. [ALL MEGA INDUSTRIES ARE THERE IN COASTAL AREAS/ WITH LOTS OF PUBLIC MONEY AND MAKE NO MISTAKE NOW/ YOU WILL SCORE IF YOU SUGGEST NOW.] LET A.I.C.T.E., WORRY ABOUT QUALITY BUT DEFINITELY WE DO NOT NEED ANY MORE -MANAGEMENT OR ENGINEERING COLLEGES/ BUT NEED TO PUT ALL OUR EXPERIENCES IN RESEARCH FOR GENERATIONS TO COME., OTHERWISE SOCIETY WILL NOT EXCUSE US., AND COMBINE US ALONG WITH PRESENT POLITICIANS.

SURYA.S.N.

Umesh Dhargalkar [Sat Aug 31 10:31:04 2002]

There has been a lot of discussion on many issues. And that is great.

I am so happy that practicing consultants have started expressing themselves. But have we not been facing these problems over many years? This e-conference has given a good platform to lament collectively about issues for which probably WE ourselves (consulting structural engineers) are to be blamed for bearing with them without protest. Does this not imply acceptance of the system? Okay, in this e-conference we have found a few people, things and systems to blame. But HOW MANY OF US (all participants as well as the moderators) have put in time and efforts to correct/ fight them? More importantly, WHAT ARE WE GOING TO DO AT LEAST NOW OR IN THE FUTURE?

The issues discussed in the e-conference are extremely important since they concern our DAILY professional activities. And I believe that systematic, focussed and persistent efforts supported by regular follow up for a committed cause ALWAYS PAYS OFF.

What is more important than the e-conference is the ACTION that is required to set the things right. And IF THERE IS ANY SUCH ACTION COMMITTEE, I WOULD LOVE TO BE A PART OF THAT. And if it does not happen, it would mean that this e-conference served no purpose.

Umesh Dhargalkar

Abhishek Srivastava [Sat Aug 31 10:34:01 2002]

Dear Jain Sir,

First of all I would like to thank you and your associate members for conducting this e - conference on professional issues.

I would also like to request you for more e - conferences on different topics both professional and technical (earthquake resistant design, pile foundation design, structural dynamics, bridge engineering, understanding of latest codes, construction techniques, etc.) in future. I would be thankful if such e - conferences are conducted every 4 - 6 months.

As you have rightly mentioned that "we have numerous (perhaps too many?) professional bodies for civil engineers in India - Indian Buildings Congress, IRC, IIBE, ICI, ISSE, ISET and so on", I also feel the need of clubing all these under one name (as I requested in my previous mail on 28Aug-Proposal for Nodal Body/Institute of Civil Engineers). I am associate member of Institutes of Engineers. Last two years I was member of ICI, this year I have applied for membership of IIBE & ISET, because I am very much keen to know about new things/technology in my discipline. But its not possible to become member of all bodies. I hope to see some steps ahead in this direction.

Regards

Abhishek Srivastava

Jignesh Chokshi [Sat Aug 31 10:50:01 2002]

Dear Professionals,

On the last day of this conference, Prof. Jain has raised one of the most critical point on the mushrooming of engineering and like associations. As rightly said why we need many associations? Why not to strengthen and diversify the activities of one common and reputed association. Don't we know, United We Grow - Divided we loose? It is good and convenient to administer smaller groups and achieve goals. The same can be achieved under one common body serving interests of many different professional activities and the association can be managed professionally.

If we desire professional approach in practice, why not the same in the associations?

Under common umbrella, there can be different forums administering/promoting activities of different professional groups. Even in our social structure, many people have realized the importance of joint family over divided families and blessed with socioeconomic benefits. Unified association

would definitely serve the interests of professionals. Well, the licencing body and the professional association may be administered separately.

It is very difficult to understand what value is added in becoming member of many different associations/societies than member of just one common reputed association? Does membership in many associations just make the visiting card of the professional impressive?

Dr. Hariharan has raised an extremely important point on the recognition of contribution of engineers at national level. Many people might have wondered/questioned on this issue. Why mostly fine arts, performing arts, literature and sports people are being awarded? Can common/United association serve the platform for identification of contribution of professionals at national level?

We need to act united and wisely to promote and encourage the interests of engineering community.

Thanks,

Jignesh Chokshi

Anuj Sangal [Sat Aug 31 11:20:01 2002]

Gentlemen,

It must not be forgotten that Indian Society comprises people of different economic status. Civil Engineering requirements of each building/ structure shall meet the requirements according to the finance available for different projects. A system of gradation should be defined by society of civil engineers. This would educate the buyer/ financial organisation of the project as to what he is paying for and what he will get.

Society of civil engineers should be made with responsibility. Even the reviewer of the projects in this society should be held responsible for any mismanagement of the project.

No organisation can survive without any income. It should be the responsibility of every professional engineer to contribute in some way (which can be devised) for efficient running of the organisation.

Legal status to the society may not be forthcoming so soon, as politicians are quite busy lot!!! However, if a project financiers make it obligatory for developers to approach the society of CE than such legal status may not be so necessary right now. It needs proper public relations.

Such societies can earn by holding seminars for young engineers and publishing documents based experience of practicing engineers. We need to give something to youngsters before asking something.

In general, there are many problems, but solutions have to come from within us. We are a society of taking things for granted. I think a humble beginning should be made which can turn into a big force. Municipality and corporations should be approached in a systematic way with proper documentation to avoid projects falling in the hands of unscrupulous builders. A sense of responsibility has to be brought in every engineer.

Anuj Sangal

Vasant S. Kelkar [Sat Aug 31 11:20:04 2002]

I would like to elaborate further on Architect- Structural Engineer Interrelation presented so well by Mr. M. Raj.

It is sad that most clients prefer to appoint only an Architect and leave appointment of other professionals to his whims and fancy. One can understand if a doctor or a businessman, wanting to have his first bungalow built, says that he will just appoint an Architect and leave everything to him - since such a person may not even know the details of roles played by other professionals like a Structural Consultant in construction of his bungalow. But one gets surprised that companies involved regularly in construction projects such as, for example, Tata Hsg. Development Corpn., refuse to appoint structural and other consultants directly but route their appointment only through the architect appointed by them. They do not understand that it is in their interest to select and appoint(with rational fees) all professional consultants directly. All such companies give the same excuse - that they want to deal with only one professional who will be responsible for all his subconsultants. They do not want the trouble of coordinating the work of various consultants - although in reality, during the progress of a project they have no alternative but to contact and pursue structural and other consultants directly(and not through the Architect's office) for their drawing requirements or site problems and for coordinating their activities!!

Structural Consultant's role thus becomes like that of Anaesthetist who will generally get appointed only by the operating Surgeon and rarely directly by the patient. He gets much less identity (and remuneration) in a project than what is due considering that his work involves the maximum risk amongst all professionals involved in the project.

Structural Consultants must make efforts to educate clients on this. On my part whenever I see ads inviting services of Architects for any project, I have been writing to those clients, through ISSE (Indian Society of Structural Engineers, Mumbai), explaining how it is in their interest to also directly appoint a Structural Consultant for their project. Many such letters have been sent in the past. If more engineers take up this issue with their existing and prospective clients, we may perhaps see a change in their outlook.

There are also several other matters affecting the day-to-day working of a Structural Consultant which I could write about. But this in part II if there is still time left before the conference ends. I will mention just one minor issue below:

With the advent of technology, many architects now give their drawings on floppies or send them by email asking the Structural Consultant to plot hard copies of the same in his office. Can a Structural Consultant afford to spend the additional time and money required to plot architectural drgs. of various architects in his office? In consultation with predominantly architectural bodies like PEATA, certain norms of practice must be decided such as, for example, - Architect should be responsible for giving hard copies of all his drgs to the engineer plus autocad files of only the floor plans (which the engineer can use for making structural plans).

Vasant S. Kelkar

S Agarwal [Sat Aug 31 11:22:00 2002]

Dear Sir,

I have designed several STG Pedestals up to 200 MW for Indian and US projects and all are functioning well without any problem. I do not think anything is faulty in the IS code if interpretation of clauses is correctly understood. Code should contain more about 3D Modeling and soil structure interaction which is missing but whatever is given is sufficient to design a safe structure for STG pedestal. But any good designer should also refer to ASCE recommendations and DIN/VDI standards for the design of such important structure. There may be several other reasons which may cause vibrations, one of the reasons could be

very closely spaced rebar which may cause honey combing in concrete. One should always use higher dia bar with minimum spacing of 300 mm for top deck beams. Generally designers use lot of closely spaced stirrups in columns and that may again lead to honey combing. There is a wrong conception of provide heavy reinforcement for STG pedestal.

If you want I can send you some sample drawing of a STG pedestal of 200 MW GE machine that will give you feeling about the rebar spacing in columns and beams. All these projects done by us have been commissioned and we not faced any problem so far.

Sanjay Agarwal

Prakash Kadam [Sat Aug 31 11:53:00 2002]

hi Ers.,

geologist could help use rock directly in structure instead of crushing into aggregate & reuse to make another rock namely concrete.

prakash kadam

Hemant Vadalkar [Sat Aug 31 12:23:01 2002]

Let us do something for providing training to Civil Engineers. Training for fresh graduates is required for

- * Good Design Practices
 - * Software Applications
 - * Site Supervision
 - * Tender, BOQ, Specifications, Billing etc can be arranged under the banner of ISSE or Institution of Engineers
- or by a dedicated group of professionals who can spare some time for our fraternity and society.

I am ready to help out in software applications, RCC and Steel design in Mumbai area.

Hemant Vadalkar

Arvind [Sat Aug 31 12:40:02 2002]

Dear Sri Agarwal,

I certainly like to take your offer of having sample drawings. My address is as follows;

With warm regards.....Arvind

N. N. Javdekar [Sat Aug 31 13:14:00 2002]

The Developer/Builder is generally a businessman and appoints an Architect, mainly because it's a statutory legal requirement. The Architect then selects his team. It's similar to a patient going to a surgeon for an operation, where the surgeon selects his team of other doctors of necessary disciplines, with whom he has established some rapport. What is needed is to have a clearcut agreement of the services to be included in the assignment entrusted to the Structural Engineer. That should also cover the payments schedules. The payments can be even directly released by the Developer if the agreement stipulates it. Engaging directly the Structural Consultant involves a lot of co-ordination and efforts, and even govt/semigovt bodies find it difficult. For major jobs they stipulate Proof Consultants.

N N Javdekar

Dr. S. K. Bhattacharyya [Sat Aug 31 13:14:03 2002]

Dear Mr. Jaiswal

It's nice to know that, at least there is one Institute, which caters for the training of working personnel. In the Eastern region, to my knowledge, we don't have any such organisation. I don't know whether it is possible or feasible for the Institute at Hyderabad to have workshops in other states as well, may be in association with the Institution of Engineers.

Also, there is a need for monitoring the quality of work (material, construction practices etc.) and personnel by qualified and experienced groups (may be legalised groups zone-wise are required to be formed) and provide guidelines to improve works.

Once again, good structural design practice is essential, but it's more important to have a quality construction with quality monitoring at all levels.

Regards

S.K.Bhattacharyya

Neeta Singhal [Sat Aug 31 13:17:00 2002]

As i read the various e-mails I was shocked to find that most civil/structural engineers lack self-esteem and that they are ready to quit, frustrated and burnt out. There were questions about their "character", there were "contemptuous Low Opinion of Engineers" and phrases like "structural Engineering needs uplifting". Architects seem to be their arch-rivals and seem to rule the project and the Structural Engineers are given no importance and that architectural plans are submitted and no structural design are verified. Even schools like IIT's dont produce capable Engineers and that Engineering schools should be halved or seats be reduced to come terms with demand and supply. There is a severe shortage of capable teachers. Young engineers are taught only "theoretics" and a majority of them earn no respect from their seniors and know nothing about "specifics" and they are incapable of drawing or even visualizing simple details. And that codes take 22 years to get approved!

As a prospective buyer for commercial property what is a buyer supposed to do? Find a Geo Technical person to evaluate the soil? Then find an Architect? Then A structural Engineer? A second one to check his work? A third party to check on his work? Find a builder who will build ethically? Make sure the integrity of materials is intact? Take approval from an engineering board and get a Certification and then take it to a financial institution to fund the loan? Gee! A private citizen has a lot of public responsibility!

Neeta Singhal

Computer Design Consultants [Sat Aug 31 13:59:00 2002]

First of all we would like to thank Prof. Jain and his colleague for arranging such a wonderful e-conferences.

There were tremendous views from various professionals, senior professors, consultants etc.

As a reputed consultants having nearly two decades of experience in consultancy, we would like to share some of our views about the current trend which makes structural professionals to make frustrated.

We have three variety of clients. We can categorise them as given below.

1. Clients who have got no knowledge about design but from their experience in construction accepts what ever we suggest though they may lament on economy sometimes. They will not even proceed without our consultation to change a partition wall location after the design is over.

2. Clients who have got minimum qualifications and some knowledge about structural concepts and many times argue with us but finally agrees to do what we say. Some of them will go to another consultants who gives less concrete size with min. steel.

3. Clients who have got thorough knowledge and cooperate very well and respects the consulting engineer.

The above category is normally we come across. In many cases, we are struggling to provide a proper structural system since the plan is prepared by architects who gets a handsome fee without considering the structural system. In those cases, if we explain the client especially when he happens to be category 1 or 2, he says that the present market is buyer's market and we have to prepare the plan as per client's request. Hence we can't change anything in the plan and says that as a consulting engineer, we have to do the system accordingly. In those cases, the plan is diff. in each floor totally and there is no symmetry in the beams. This may not be good for seismic condition since this will create non-uniform mass distribution. Hence we have to design taking extreme care that the wall loads are properly transferred beams, col. etc. for small fees like Rs. 1/sq.ft. The above problem is there even in a case where one of our client is M.E. Structures who is from a reputed college.

Few professionals have mentioned that there should be norms like only graduate engineers should only be taken for design purpose etc. We have come across many post graduate engineers who have come out from a famous engineering colleges and studied under eminent Professors were not able to do load calculation properly. In this case, whom can we blame?. One of the main reason is that the education system in our country is such that we do lot of assignments and class room problems but don't realize that the same will not only be helpful in designing a building/structure.

The basic principles should be taught in such a manner that it is related with the real time projects. For that the university should make the students to interact with the industry where the student really gets exposure to various conditions and finally can come out with a fair idea of the structural principles.

We are terribly fed up with the market situation now that though a reputed consultant we are not getting multi storey buildings and special structure and we hear that many engineers who have got little knowlegde and experience are doing mega projects since they could listen to the architects who gives a bad planning without considering the structural aspects and can accept a fee of even 0.5/sq.ft. One more problem is that due to their lack of proper knowledge many consultants do not design columns for BM and do only for axial loads though the spans are more that 12'. In that case, they arrive at even 9"x9" column with only 12mm rods for a G+3 building where the avarage col. load will be around 40-50ton. When they come to us for any other reason and we design properly and put bigger size column, they say that there many structures which have been standing for many years without any problem with only 9"x9" columns. Many multi storey buildings have been constructed with floating columns and concealed beams which is a wrong concept and gave rise to the failure of many structures during Bhuj earthquake. This is the real situation now.

As suggested by many senior professionals, it has become mandatory now to form a main body where in you can address all these problems. But, by forming such a main body will not only solve the problems faces by the professionals but also it should be headed by a blend of eminent engineers and consultants who can really understand the problems.

As suggested by one of our senior colleague, the engineering profession should be recognized by the govt. like fine arts etc. The problem is that the policy makers are not professional unfortunately. They don't know the importance of an engineering professional in building up the nation. To make this dream to come as reality, engineers should also enter into politics and do the needful to the profession. Otherwise, whatever we discuss will be the dream in paper.

Let us congratulate the organisers once again for giving us an opportunity to exchange our views

Engineers

Arvind [Sat Aug 31 13:59:03 2002]

Dear Dr S. K. Bhattacharya,

Thanks for the reply.

National Academy of Construction, popularly called NAC has started functioning in Hyderabad. It has Residential Continuing Education Programme

Series for Working / employed engineers where various faculties from industry and academics participate.

Hon. Chief Minister Sri. N. Chandrababu naidu has made NAC financially self sufficient by collecting 0.25% tax from each contract which is being executed in Andhra Pradesh. This is probably the secrete of success of NAC.

Also it has National Institute of Construction Management and Research, NICMAR as one of its constituent which trains engineers in management education of all related aspects of construction.

With warm regards.....Arvind

Prakash Kadam [Sat Aug 31 14:14:01 2002]

dear oldies,

While we seniors keep talking of being "practical", most of us have forgotten "theory" which young generation knows better. so many of us (seniors)use working load(?)method instead of limit state method. we seniors criticize computerisation just to hide our inertia to press computer keys/mouse.it is worthwhile if junior calculates from first principle as if he writes open book test but he should be allowed to use computer while doing so. I for one am greatly benefitted from youngsters working with me. They r not to accept my advice unless i am able to convince them theoretically. while my senior colleague said there rn't changes in latest IS 456 except durability criteria, my juniors/freshers brought to my notice lot of other changes. I OWE YOUNGSTERS FOR MY SUCCESS IN THEORY "TEST" ONCE CONDUCTED IN ONE OF IITS.I STOOD THIRD IN A BATCH OF ABOUT 25 OR MORE YOUNGSTERS & ME.

PRAKASH KADAM

Dhirendra Tripathi [Sat Aug 31 14:46:02 2002]

Namaste All,

Dr.Sudhir in one of his mail wrote " as engineers we are good at finding approximate solutions to exact problems ". This probably is done with a highly objective contemplation albeit involving lateral thinking.

However when issues are considered in totality such as the current circumstance of the structural engineers as part of the construction industry there are many

aspects that though urgent are still subjective to a great extent.

In general whenever issues that need subjective contemplation are encountered by engineers there are more fears and doubts expressed than attempts at finding a solution.

For a structural engineer to succeed in fully realizing his potential by contributing to the society and reaping the benefits thereof (moral and/or fiscal) the engineer must compliment the ability to " find approximate solutions to exact problems " with an ability to " design and implement focussed initiatives aimed at solving difficult to define problems " .

To do this the curriculum must have elements of management education. There was a mention of including liberal arts. At IIT/K there were electives like sociology, philosophy but perhaps structural engineers may find topics such as marketing and venture management more useful.

There was also a mention of an architect arming himself with an engineering degree and gaining an edge in the industry. Perhaps there is a need for engineers to arm themselves with an MBA degree and taking on the builders.

regards,

Dhirendra Tripathi

Jignesh Chokshi [Sat Aug 31 15:46:02 2002]

Dear All,

The idea of considering the codes as the faulty/erroneous is not justified. We would agree that the code of practices are written as guidelines and they come with hidden disclaimer. The code itself directs us to use our engineering skills apart from the contents of code and not to fully rely/stick on them. The codes are written and revised by the experts of professional community and becomes guiding rules for consistency in the practice. The codes possess the best outcome of research available till the date it is revised. However, misinterpretation of clauses given in codes would not be the responsibility of its originator. It is like disclaimers given by all engineering programs. All practicing engineering professionals should understand this fact.

The engineer has to be circumspect and aware of other literature/material available on the subject.

At the same time, the code should address all aspects of analysis/design/detailing and construction practices for critical structures at one place rather than in different clauses of different codes. This would restrict/reduce the chances of overlooking important aspects, making errors and inconsistent designs.

Thanks,

Jignesh Chokshi

Dr. E V Namboothiri [Sat Aug 31 16:00:01 2002]

Dear Moderators & Participants,

I have been reading the opinions of participants, both practicing professionals and others.

The opinions given by many confirms my belief that the Problem is not with the Engineering profession, but it is with those who are practicing it. It is not the qualification, (graduate civil or post graduate structural or graduate or post graduate architect) but the integrity, ethics or 'moral value' of the person is what is important. All of us know that Gujarat (Bhuj) is an area of high seismic vulnerability. Even the codes or laws those existed before January 26, 2001 have not permitted the type of constructions made in those areas. Then how come all those "Crime Stories" with improper design, and very poor detailing could be built, using poor quality materials and without proper supervision?.. The inhabitants (buyers/owners) could be cheated because they were ignorant about the dangers. If they were aware, they would have insisted for good quality and would not have cared in spending a little more. (In fact, informing the clients about the incipient danger is also the duty of the professional.)

Creating the necessary awareness about the requirement of good quality in all aspect will make the working of the professionals more easier. It will prevent the prospective clients from trying to overcome the laws and code provisions by money power or muscle power, (because they will be the losers in case of a collapse.)

The funding agencies who are helping the building industry to a great extent (like HUDCO and HDFC) can do a great deal in this respect. They can conduct public awareness programs on quality in construction and also insist on quality in works funded by them.

Along with all the above points, it will be wise to think of making minimum

practical/field training compulsory before the award of the degree/ license to practice.

It may be worth making the supervision by a qualified person at the construction site obligatory. (Many of the buildings those collapsed in Gujarat would have stood erect if it was not for the quake and the poor quality of materials and construction would not have been brought to light at all).

I join with all other participants in thanking the organizers for conducting this conference and urge them to conduct similar ones in future also.

Dr. E V Nampoothiri,

Alpa Sheth [Sat Aug 31 16:13:00 2002]

Hi All,

In continuation with all that we have been discussing, I found the Code of Ethics as laid down by ASCE in 1976 very relevant. If we could follow something similar!!

Alpa

I quote hereunder:

American Society of Civil Engineers (ASCE)

Code of Ethics

As adopted September 25, 1976 and amended October 25, 1980 and April 17, = 1993

Effective January 1, 1977

Fundamental Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- 1.. using their knowledge and skill for the enhancement of human welfare;
- 2.. being honest and impartial and serving with fidelity the public, their employers and clients;
- 3.. striving to increase the competence and prestige of the engineering profession; and
- 4.. supporting the professional and technical societies of their disciplines.

Fundamental Canons

- 1.. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

- 2.. Engineers shall perform services only in areas of their competence.
- 3.. Engineers shall issue public statements only in an objective and truthful manner.
- 4.. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
- 5.. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
- 6.. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.
- 7.. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

Datta Kare [Sat Aug 31 16:34:01 2002]

Dear Everybody,

We, in Goa, were using MKS system since last 450 years of Portugese rule. All over India, British used FPS system. But many of the architects, Engineers and even Government technical offices throught India still use feet, gunthas etc.

Conservative British govt have made use of SI compulsory along with traditional units like ounces, miles and determined to switch to SI only in due course of time. Are we determined to change? Currently in India, young professional are also starting their career with feet & inches. Shall we pledge to switch to one system of units at least now? (Use of kg or ton instead of N is well tolerable)

Datta Kare

Abhay Godbole [Sat Aug 31 16:47:01 2002]

Dear friends,

Sorry for joining on last day, but after going thro' various mails, I realised that many of us are facing identical problems. To overcome such problems we must unite and form an Apex body which should tackle mainly following professional issues.

1. "Structural designing job can be taken up by anybody" -this feeling of many of our professional colleagues should be nullified by creation of professional exams and degrees like MIStructE, FIStructE or PE by the Apex body. We should respect the talented experienced designers or those who pass the above exams

and only they should be allowed to practice as designer/Consultants.

2. Many times experienced Designers due to some constraints/pressure or due to last minute revision of Architectural drgs. tend to resort to bad engineering design concepts and subsequently try to defend themselves. This situation can be avoided if design scrutiny services are introduced by the Apex body and should be made mandatory for all designs. The Apex body should also take up liability along with the designer. The Apex body may introduce the various classes of the structures based on the safety and quality norms adopted. This will off-load the "work" of local municipality, where such a work is presently a farse.

3. As a software developer of mid 70's and 80', I realised that some senior designers still resist the idea of use of computers and still resort to short cut methods or Rule of Thumb. Even the IS -Code committee has not dropped moment coefficients like $w_{12}/9$ etc. from the IS:456-2000 when extensive analysis can be easily performed on a desktop computer using either self-developed software or readymade software after understanding its limitations. The subsequent design work is not merely an art as quoted by some member, but a pure science.

4. Many Contractors, Architects, diploma holders or even a mason, if they get an upperhand in decision making, try to interfere in the design issues and force Structural Engineers to implement bad structural concepts like floating columns, removal of outer beam over columns in enclosed balconies etc. If Engineer resists, they replace him immediately. Such situations can be eliminated if Structural Engineer is given more powers by introduction of clauses like "no objection certificate of previous consultants" before appointment of the new Consultant. Or else Apex body may intervene for mediation.

5. I have taught for eleven-twelve years to Engineers and Architects and am aware of the "Engineering" syllabus for Architects. The Architects neglect the subject totally so much so that they have to hire Engineers like us to teach "Engineering" in their colleges. You will hardly find an Architect capable of teaching Engineering in Architecture college. The branch of Architecture in my opinion is not a branch of "Technology" now a days but reduced to merely a branch of Art/aesthetics. All other subjects like water supply & sanitation is taught without knowledge of hydraulics, the subjects like transportation, railways, bridges etc are totally absent in their syllabus. How can we allow such a professional to take up a leading Consultants role. The Apex body should give wide publicity to such scenario.

6. During the earthquake period it was surprising to find comments from Architects over seismic designs as an expert whereas in reality simple static

lateral load analysis is also not taught to them during their course. The Engineers get involved in their routine profession so much so that no one has time to come out openly for giving wide publicity to the real issues and Architects find all the time and money in the world to play Politics for Architect's bill and other publicity and public relation work.

7. Architect's Bill preventing others from planning should be totally opposed by all members through the Apex body. Engineers are better suited to do the planning in every field except in the area of aesthetics in some cases. The creators of many Architectural master-pieces Frank Lloyd, Fueller or bridge Architects like Calatrava were basically Engineers.

8. The Apex body in my opinion should not get involved in teaching or training others. This job should be left to IITs, IISc or other reputed Colleges. Persons desirous of updating themselves should look for seminars, technical publications or books.

9. IITs, IISc and other colleges should encourage the teachers with professional experience. No one can dispute that Professional/ Teacher with teaching/ professional experience can do better justice to both design jobs as well as teaching.

10. In seismic analysis some of our colleagues wrongly argue upon more accuracy in calculation of fundamental frequency of structure by approx. formula as against the one obtained thro' rigourous free vibration analysis. The Apex body may sort out such issues and correct the wrong doing members.

Let us unite for better Engineering Practice.

Abhay H. Godbole

Sivakumar K [Sat Aug 31 16:53:01 2002]

Dear Professor Sudhir K Jain, Ms. Alpa Sheth and all my eminent colleagues,

Good evening to all of you.

The facts put forward by Computer Design Consultants are very much real. Their difficulty in convincing a ME graduate client is distressing. The problem in our Structural Engg. profession is that, either we tend to be completely theoretical or 'fully practical without logic'. Unlike the medical profession, where Doctors constantly update themselves and apply the latest knowledge in their profession, we don't have this quality in most of our fraternity. It has to be realised that

theory and practice are like two rails, and our professionals should realise its importance in a long term view. There should be more interactions between academicians and practising engineers under some umbrella organisations, as in USA such as ACI, ASCE, etc.

Lastly, there is a fewer representation in our polity and a sizable representation will be definitely beneficial.

The organisers have done a wonderful work in conducting the conference and moderating it nicely. Let us hope to have many such purposeful e-conferences improving our profession.

Thanks for the wonderful opportunity,

Regards,

K. Sivakumar

Ramesh P. Singh [Sat Aug 31 16:56:01 2002]

hello,

I must thank Alpa for forwarding Code of Ethics to all. It is good to know views of so many Structural Engineers but what is IMPORTANT is to follow the Code of Ethics. I am sure if we follow these codes in this country, then today my friends Sudhir Jain and Alpa Seth could have organised this e-mail Conference on some other important topics. I would like you all to discuss what is perception of public about you, in this regard you all may make a note of Ms. Neeta Singhal's mail. I would like all of US TO SIT and think after 10 pm IST (after e-mail Conferencing) and see how much we practice these CODE OF ETHICS, if not let us

RP

K. V. Rangaswami [Sat Aug 31 17:44:01 2002]

Dear Sudhir Jain & Alpa Sheth,

It was very interesting e-brainstorming arranged by you on certain very fundamental issues of our Profession. Last 4-5 days the interactive e-conference could trigger the thinking process in millions of Civil Engineers across the world. Very interesting thoughts & views of several eminent professionals reached our computers. It was a wonderful experience indeed. The first trigger

was from Mr. Shirish Patel wherein he had expressed concern over low status of structural engineer professionals in our society and the lack of professional commitment & accountability in many. We had several issues raised up and several solutions for many were also suggested. Out of those many we have to see how actually we can make them implementable in our country. One thing that has emerged clearly from the discussion is the necessity for Empowering Structural Engineers. The lack of empowerment by the Government & legislation has led to the low status. Civil Engineering profession is the oldest profession. Even before the concept of stress-strain evolved, the human beings were still building structures, some of them master-pieces too! As rightly pointed out by Mr. Jitendra Bothara, it is necessary to understand the issues of Craftsmanship & Engineering in our profession. Our Engineers need to learn more about the craftsmanship in Engg. Schools some of them hands on. Most of our small buildings are constructed (designed!!) by craftsman out of mere experience & thumb rules. When natural calamity like earthquake occurs, they are the ones to get damaged most. The structural Engineers & professional architects come into the picture only when the construction project is reasonably big. But yes for approval of Plans of the small buildings, the architects do come into the picture. And, we all know how farcical the whole process is! As pointed out by Shirish Patel himself, the specialist need to do serious introspection as to why they have not been able to win the social status in the civil society whereas the Architects have. Like in cricket our society needs Engineers with all round capabilities and our Engineering colleges are already aware of this necessity. To further add, there is no reason for the Geologists or Geo-technicians to feel left out here. Certification of Engineers is already in vogue in several developed countries and we need to only adapt it suitably for our country. I understand from various discussions, lots of steps have already been taken in the right direction. Government needs to only bring in key policy changes to empower the Certified Engineers and bring them to streamline. In addition to certification of Engineers, we also need to certify our Craftsmen who are the frontline people in the industry. The proper training of the workmen and their skill development is a very crucial issue, which has to be addressed to in all seriousness if we have to improve the quality, Productivity & economy of the final product. We at L&T and few other firms in the industry have already taken positive initiatives in this area. The government needs to insist on certification of workmen deployed in construction sites too. This again is a common feature in foreign countries. On the whole these steps will eventually help us in bringing in greater professionalism in all our Civil Engineering activities. Once again thanks for organizing the wonderful e-conference,

K.V.Rangaswami

S. Bhattacharya [Sat Aug 31 17:46:01 2002]

Dear All

I think there is a need of a covention between INDUSTRY and INSTITUTE whereby a decision should come out what are the ingredients and essential courses based on the need of the day. Offcourse we should not discard the basics. The industry people may point out what are the defecencies of a freshly passed graduates.

This has to be followed strictly by all INSTITUTES, IIT's , REC's and all state run schools.

On 4th and 5th September, the Geotechnical teachers of U.K are meeting for a discussion on this issue at Cambridge.

Still in some institutes they teach the Kanis method and other obsolete methods in second year of Engg- wasting time. The theory of COLLAPSE- how the structures collapse, importance of the PLASTIC collapse mechanisms are not taught.

Just a thought

Subhamoy Bhattacharya

Arvind [Sat Aug 31 17:47:01 2002]

Dear All,

Alpa Sheth and Dr Sudhir Jain have set the tone for closing the e-conf.
Meanwhile I have following excerpts from ASCE:

Our Vision Should be "Engineers as Global leaders building a better quality of life" Mission

To provide essential value to our members, their careers, our partners, and the public through:

- Developing leadership
- Advancing technology
- Advocating lifetime learning

The Lead organisation should continue to add exciting new benefits to help members in their professional and personal lives, giving members more value for their investments:

- A. By providing access to quality information on technical and professional issues related to Civil Engineering.
- B. Work to advance the image and future of Civil Engineers.
- C. Give members the career resources they need.
- D. Provide convenient, cost-saving personal benefits and discounts.

The Lead Organization should become publisher and leading source of technical and professional information in the civil engineering field. Members should receive complimentary monthly subscriptions to Journals providing information about latest technical advances.

The lead Organization should publish technical publications, including journals, standards, manuals of practice, contract documents and other career enhancing books.

It should allow subscribers to download minimum 25 articles from any journal which it publishes per calendar year for a flat fee.

The Civil Engineering database should be made available at no additional cost, should have an electronic information retrieval service for all the members.

Videos on various engineering topics should be made available for the members.

It should set up a service which can help find background information on research data for reports and projects, this can be achieved by having some third party JV.

Civil Engineering experts from around the world be requested to contribute directly through their participation on committees that define standards, direction and focus of the profession. The organization should foster the advancement of civil engineering as a professional discipline through activities including engineering management practice guidelines and a peer review program.

The Lead Organization should develop and produce consensus standards for use in codes and specifications and as design guidelines. The Organization's programmers should be accredited by the BUS, which will make all Lead Organization's Standards eligible to become Indian National Standards.

It also should create a lasting legacy for the Organization, its members, and civil engineering profession by

- * Preserving and promoting the history of civil engineering
- * Increasing awareness and understanding of the civil engineering profession and exciting and inspiring young people to become civil engineers.

To be continued.....

With warm regards.....Arvind

Durgesh C Rai [Sat Aug 31 17:47:05 2002]

On liability of BIS in case of non-performance:

My understanding is that the code writing bodies such as BIS, BSI, ICBO, etc. are non-profit-making organization who are writing these documents to help the municipality inspectors (or responsible officials) in their job of ensuring public safety. They are called as model codes and they are legally binding when they are adopted as specifications in a contract. Municipalities may modify the model codes as they deem necessary. Courts have been reluctant in holding municipalities liable for non-performance, but they can be sued, not the code writers such as BIS, BSI or ICBO. For example, Ahmedabad Municipal Council can be sued for Ahmedabad collapses but not the BIS!

Durgesh Rai

Behram A. Dadachanji [Sat Aug 31 17:48:01 2002]

Dear All,

During experiments on buildings and bridges, long stroke shakeres have been used to sufficiently excite the structure and to detect the resonant modes using high sensitivity accelerometers.

The shakers can generate up to 100 lbf at 0.8 Hz or 36 v1bf at 0.5 Hz.

Using high sensitivity accelerometers and averaging techniques, measurement of displacements of the level of 14 nanometers at 0.876 Hz have been reported.

This is for your informations

Kind regards.

Behram A. Dadchanji

Jaswant N. Arlekar [Sat Aug 31 18:05:02 2002]

Dear conference participants:

One of the issues pointed out in the mail from the moderators at the end of the first day of this conference was about licensing of professional engineers. I have discussed the following model with a few people here. The intention is to take advantage of the existing infrastructure and evaluate people based on what they are good at.

This is a 3-level model, and it can be made self-sustaining.

Engineer in Training (EIT)

Eligibility:

Bachelors Degree

Valid score from GATE/NET/CSIR Exams

A person with the above eligibility applies to the governing body and gets an EIT certificate. This way we will be taking advantage of the already existing system, and don't have to create another examination structure.

Certified Engineer (CE)

Eligibility:

Diploma + EIT + 3years working experience

Bachelor degree + EIT + 2 years working experience

Masters Degree

Doctoral Degree

Bachelor degree + 10 years working experience

A person with the above eligibility applies to the governing body and gets a CE certificate.

Till this point the certified engineer is NOT having any specialization. Any civil engineer can become a certified engineer.

Practicing Engineer Structural (PE)

Eligibility:

Certified Engineer Certificate

Procedure to get a PE certificate:

Persons desirous of getting a PE certificate will apply to the governing

body.

The governing body will give 5 real time problems to the candidate.

The candidate picks 2 problems and prepares an 1hour presentation for each within 2months.

The governing body constitutes a committee of 3 qualified people.

The committee selects 1 out of the 2 presentations.

The candidate walks the committee through the entire problem and solution.

At the end of the presentation the committee decides whether the candidate passes or fails.

The PE certificate remains valid for 3years.

Fees:

Rs 5000/-. This can be evolved based on the economic conditions.

Rs 5k is suggested based on the following:

A committee of 3 people can sit through 10 presentations in a day. The total money collected from 10 people amounts to Rs 50k (10x5k), which should be more than enough to take care of the mobilization of the 3person committee. The committee should include people from around the examination center. For example, for exams in Delhi, the committee should be formed of practicing engineers and professors from Delhi, Chandigadh, Lucknow, etc.

The above model takes into consideration the fact that a person's ability and aptitude should be evaluated from looking at things that they are good at. While the fresh graduates are good at giving exams (at least they are supposed to be), the experienced engineers may not want to go through an exam. They'd prefer working on a problem and presenting it to a committee (that's what they do in practice).

Sorry for making this a long mail.

Best wishes,

Jaswant

S. Bhattacharya [Sat Aug 31 18:35:01 2002]

This is Subhamoy Bhattacharya

This is in connection to the mail of Dr S.K.Bhattacharyya about a training Institute. I also think there is no such institute in Eastern India.

Recently i attended the 7th Young Geotechnical Engineers Symposium at Dendee (Scotland). It was attended by 70 Engineers from 10 countries. The age limit was

30. There were engineers from companies like Ove Arups, Mott Macdonalds, Fugro, Atkins, and many others and reserachers, post docs from many institutes.

Each had to present their work for a maximum of 10 minutes. In a session there were 5 speakers. The session was chaired by a renowned person from either industry or academics. After the talk there was a discussion session where by all the presenters were asked to sit in front of the audience- and the chairman was conducting the Q and A session.. It is similar like "HARD TALK of BBC conducted by Tim Sebastien". Each was torn apart. Thus the reserachers know what the industry is doing and vice versa.

I put forward a particular example. It is on Pile foundation session. The works presented are

1) By OVE Arups-- Piling works of Heathrow Terminal 4 buildings. The engineer showed the method of design of pile foundation--- i.e. predictions based on Codes of practice. Some piles were monitored using Osteberg cells, strain gauge etc etc. How does theory compare with practice. His explanation.

2) Silent piling technology of Giken (Japan) and its application in quay wall in Yokahoma. He showed the noise level reduction acheived. His design method, and comparison. Why a mismatch

3) Physical modelling of Pile in the labortaory: Design paramters used labortaory needs.

4) Numerical modelling of pile using FLAC -- what is the constitutive relations used. How does it match with measurements in lab or field.

5) Study of case histories of pile foundation failure

The session chair was Prof Barry Clarke, the president of British Getechnical Association. He asked many questions

a) an engineer wants to design a piled foundation. He is confused because theory does not match with practice. Sometimes the theory is unconservative which leads to failure. He asked each presenters about their opinion and then challenging question to each of them.

The message i want to highlight is --- organsing a similar program in each part of India. Like in eastern India Dr S.K.Bhattacharya can organise with

1) IIT KGP

2) B.E.College

3) Jadvapur University

- 4) REC Durgapur
 - 5) Jalpaiguri
 - 6) CES. Pvt ltd
 - 7) DCL
 - 8) Research Engineers
 - 9) STUP
 - 10) L & T (ECC), (EPE)
 - 11) AFcons
 - 12) M.N.Dastur
 - 12) Shapporji and Palongji
- and many other.

Then organise a NATIONAL YOUNG ENGINEERS SYMPOSIUM taking the best engineers from each region.

We need people with good balance between Industry and Institute like Dr S.K.Bhattacharyya, an ex-industry person (i think Ex- Tata Consulting Engineers), who has taught abroad to TAKE INITIATIVE in each corner of the country. This will help in a "MARRIAGE BETWEEN INDUSTRY AND INSTITUTE".

Indians are very good in Numerical methods but there is a need to validate them. There in lies the necessity of INSTRUMENTING real structures, doing physical modelling.

Researches done in Engineering institutes should be put directly in use by industry. Industry (NOT TAX PAYERS) should fund researches in Engg Institutes. This will help us to achieve better economic Engg and not just publishing papers. We can then fight with MNC's. If we can perform better practice Indian Consulting Engineering companies can also get good contracts abroad.

Regards

Subhamoy Bhattacharya

Shirish B Patel [Sat Aug 31 18:36:00 2002]

Dear Participants,

May I clarify a point which I think has been misunderstood? This was the example of young engineers not knowing there are two waste pipes out of a bathroom. It is not that we expect fresh graduates to be familiar with all sorts of

practical details, codes etc., which will easily be learnt in the course of one's working career (unlike theory, which is not so easily self-taught). The point is rather that we forget we are members of a larger profession, the building profession, and each of us needs a good basic general knowledge about the whole field. Let us not assume that our engineering and architectural education systems are wonderful and need no improvement. Just as architects need to be taught the basics of engineering stability (which they are not), structural engineers also should be fundamentally aware of what else goes into designing and constructing buildings. Otherwise they will make poor project leaders and co-ordinators, even team members who can comment on each other's work. Extreme specialisation is best built on a solid base of general knowledge.

Incidentally, because fresh graduates' skills are so poor (inability to draw the simplest sketch; inability to manually analyse a simple truss; not the faintest idea of what order of magnitude results to expect when sitting down to run a computer program analysis; no ability whatsoever at generating conceptual alternatives) in our office we have started an in-house training program where we expect to spend up to a year training fresh graduates before they enter the stream of productive work. If some of these trainees leave us, as they undoubtedly will, at least the profession will have gained something and our efforts will not be a complete waste. Meanwhile, if they want to learn, they have direct access to the seniormost people in the office, without a hierarchy.

Regards,

Shirish Patel

S. Bhattacharya [Sat Aug 31 18:49:00 2002]

Dear Mr Arlekar

I agree to the model suggested by you. It is amazing. The idea of having one public examination record like GATE/NET is very very essential. This can be used as a benchmark of syllabus.

I want to add couple of points.

1) Each Engineer applying for a (PE) should have a service book (like ICE, London) where he has to maintain a record of his training, works done, attending conferences, seminars, reading journals papers etc etc. His knowledge about ENVIRONMENTAL aspects--- i.e. DOCUMENTATION.

2) Is the fees bit high Rs5000. For individual applicant it can be a bit low. It

should be mandatory to have a sign of a PE in each project however small it is. 1% of the fees should come to this institute for each document signed by the PE. We should have a website with utmost TRANSPERENCY -- everything should be open. How many persons applied, from where they passed everything. Online application.

Thank you for coming up with a brilliant idea. I think we should all thank Mr Arlekar for a quick model.

Regards

Subhamoy Bhattacharya

Sudhir Badami [Sat Aug 31 18:59:00 2002]

Dear Pankaj Gupta,

Where is your second part of the Crux of the Problem ?

Sudhir Badami

Arvind [Sat Aug 31 19:09:00 2002]

Dear All,

Continued from part 1.....

These are excerpts for everyone:

The Lead Organisation should have an ongoing commitment to provide high-quality continuing education and training to civil engineers and related professionals. Numerous world class conferences should be organised to provide programs and technical information relevant to member's project. It should develop a base of expert instructors to conduct seminars and computer workshops covering a wide variety of technical, professional and management topics, providing and maintaining licensures in many states. It should offer self-study and distance learning programs, including courses made available on CD-ROM, audiotape and videotape or online. It should also offer customized in-house training seminars to meet specific needs and schedules, eliminating extraneous travel and expenses.

It should have a ResumeMatch Service to gain career advancement exposure.

After simply uploading resume to the database, it should be instantly able to search prospective employers who look to hire members.

The Organisation should be able to offer networking opportunities with all members, including educational and industry leaders who can help guide and shape technical interests and professional interests of member.

The Organisation should be able to provide additional, targeted opportunities for younger civil engineers to participate, network and develop leadership skills.

The organisation should encourage participation in technical, professional, educational or special interest committees at the local, regional and national levels.

The activities and programs to develop at the grassroots level within each local section and branch shall include:

- * Public service outreach utilizing key engineering skills to benefit the community
- * Educational programs, including speakers at local career fairs, bridge-building contests and scholarships
- * Recognition of local historic and contemporary civil engineering projects through the National Networks of organization.

The organization should continually work to shape the future of civil engineers and improve engineering education. They should have an extensive educational and diversity program with a wide range of activities for students and educators, encompassing student chapters / clubs and competitions, scholarships / fellowships, excellence in civil engineering education program to better prepare civil engineering faculty, and the accreditation of engineering programs.

Least but not last it should proactive public relations campaigns to enhance the image of civil engineers and build public support for better investments in India's infrastructure.

It should act as collective voice of the profession in local, national and international forums, and ensure that viewpoints of civil engineers are heard on relevant issues that enhances the quality of life, improve understanding of the civil engineering profession and influence important legislation.

With warm regards.....Arvind

Shirish Patel [Sat Aug 31 19:31:01 2002]

Dear Participants,

Please, it is not young engineer bashing. Bashing, if at all, is of the education our engineering colleges provide, not only the quality but also the content. Does no one think this needs re-appraisal?

Regards,

Shirish Patel

Manamohan R Kalgal [Sat Aug 31 22:27:01 2002]

Dear Participants,

Bashing is of no use whether it is young engineers or the educational institutions. What efforts the industry people have made to interact with the syllabi makers in the universities? It is unfortunate that for many years it was taboo for a teacher to interact with industry. They thought he is making money by "indulging" in consultancy. People who have no exposure to industry, by their "seniority" become syllabi makers. The curriculum has no allocation for industry interaction in most universities. The associations have to bridge the gap between the industry and institutions. Fortunately, oflate, AICTE is asking universities to prove that they interact with industry. Let's all try to find a solution rather than industry blaming educators, and educators blaming industry. I agree with Sri Shirish Patel that fresh engineers are definitely not to blame.

Regards

Dr. M. R. Kalgal
Professor of Civil Engineering,
MSR Institute of TEch., Bangalore

Prakash Kadam [Sat Aug 31 19:35:01 2002]

Only few questions/comments (IN BRACKET).will somebody advise?

Fundamental Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- 1.. using their knowledge and skill for the enhancement of human welfare;(what to do when this conflicts with 2 below?)
- 2.. being honest and impartial and serving with fidelity the public, their

employers and clients;(refer last part of 4th canon especially in relation to fellow civil engns working/ worked on same job)

3.. striving to increase the competence and prestige of the engineering profession;(do other engg disciplines keep prestige of civil engg?)and

4.. supporting the professional and technical societies of their disciplines.(too many as pointed out by some participants)

Fundamental Canons

1.. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

2.. Engineers shall perform services only in areas of their competence.

3.. Engineers shall issue public statements only in an objective and truthful manner.

4.. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

5.. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.

(let us resist price-competitive bidding, I am successful in this respect for last 11 years)

6.. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.

7.. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

PRAKASH KADAM

Chitra Javdekar [Sat Aug 31 20:42:02 2002]

Dear all:

It has been a pleasure to meet you all at this econference. It was a great opportunity to hear about different issues and about possible solutions. And it provided a much needed platform to talk, discuss and meet people from all over India.

I would like to thank Dr. Sudhir Jain and Ms. Alpa Sheth and their team at NICEE to have accomplished this task of bringing so many people from all over India and other countries together to discuss these issues. It has been a great task and its success can be measured in terms of the interaction it allowed with others in the field and by the amount of useful information it has generated that is for us to keep and work on. It needed great management skills and planning and I appreciate their efforts that went in to make this conference a great success.

And also thanks to you all whose posts I have been following and these posts have been very informative and educational.

I hope the best to all of you; to the moderators and their team at NICEE in your professional/personal goals.

Chitra Javdekar

Prakash Kadam [Sat Aug 31 19:53:06 2002]

dear Ers,
no more new licensing bodies please.leave it to Institution of Engineers(India)
prakash kadam

Prakash Kadam [Sat Aug 31 20:03:00 2002]

dear Ers.
the explanatory handbooks to codes normally help interpreting codes correctly.there r few references in expl.handbooks which r further useful for perfect understsanding.

Prakash Kadam

Pankaj [Sat Aug 31 22:25:01 2002]

Hello Colleagues,

As per the demand of many, I have setup a free easy to use email group, like this one, for continuing the discussion on professional issues in Structural Engineering in India. The group is unmoderated & everyone is free to post, but please be ON-Topic & polite. Attachments are not allowed for fear of virus spreading.

To learn more about the sei-mail group, please visit
<http://groups.yahoo.com/group/sei-mail>

To start sending messages to members of this group, simply send email to sei-mail@yahoogroups.com

If you do not wish to belong to sei-mail, you may unsubscribe by sending an email to
sei-mail-unsubscribe@yahoogroups.com

I hope this will help in creating a common platform for the Structural Engineering community in India specifically. For International issues such an e-mail list already exists at www.seaint.org.

Regards

Pankaj

Sanjeev Hanumant Mangoli [Sat Aug 31 20:44:01 2002]

Dear Friends,

All what we are seeing in this conference is the views of very few % of the total lot. It is like Indian election. The person who is ruling has been elected from the total voter % which is less than 50%. The same will be repeated if we don't come together and make sure that everyone gets the help. For this Ms Alpa's suggestion for free website was excellent and also the continued education also. Also I feel that there is great need to come together and start small consortiums to meet the competition from MNC and foreign consultants.

We ourselves work for less pay with these so called giant consultants to get the name but are lost in the ocean. It is time to arise above all this and work for a common goal. Any young engineers ready to join my company to lead the SURAT center as profit/loss sharing head? It is equipped with computers softwares etc.

Any Takers
Sanjeev

Prakash Kadam [Sat Aug 31 20:49:00 2002]

hi,
sorry for bringing out new topic at end of conf.

let us expand/acquire our skills into

1. Structural design of weird architectural features. say spiral staircase ending into platform supported only on its foundation. no columns please. i am sure u can do it.
2. design of machine parts. we r better equipped to do pressure vessel design.
3. setting structural design procedure (similar to RCC/Steel) using local, natural materials such as granite, marble, laterite & sooooo many including timber.
4. Artificial body parts such as denture roots, knee caps, heart valves .
5. we can learn from plants way they grow. (no joke - once I was consulted by my

friend to protect his factory structure from branch of awkwardly growing mango tree leaning against structure without cutting it. he was willing to use tonnes of steel(ha ha) to protect both structure & branch)

prakash kadam
consulting engineer

Prakash Kadam [Sat Aug 31 21:13:00 2002]

dear Ers.,
views expressed by Dr.Shirish Patel,K.V.Rangaswami & others regarding craftsmen r important.As Dr Pandit once pointed out we are producing 2000 engineers against 200 crafsmen while it should have been other way.

we hv cube contests for engg students.we should have contests for welders,fitters,carpenters,masons,painters. some rather many of them hv intuitive skill.we engineers should verify their intuitions by our theoretical skills.if found true we should encourage them in that matter.
TO START WITH WHY NOT OFFER THEM SEAT WHEN THEY ENTER OUR A/C CABIN

PRAKASH KADAM
CONSULTING ENGR

Mahendra Raj [Sat Aug 31 21:21:01 2002]

I would like to congratulate Sudhir, Alpa, Shirish and Dr Vakil who have spearheaded this "Big Event" for the benefit of Structural Engineers of the country. The response from all over is very interesting, educative and overwhelming.

This e-conference has given an opportunity for the engineers to be vocal and air their problems and their concerns. And they have responded profusively, perhaps beyond the expectations of the organizers.

Sudhir and Alpa have summarized the problems which face the engineering profession in general and structural engineering in particular, as identified by the contributors. Some possible solutions to the problems have also been suggested. These are good suggestions.

What is required now is an effective , implimentable , result oriented action plan for resolution of each of the identified problem. And then impliment it with vigour and determination and set up a system of monitoring it.

Some of us , the senior citizens (I got into the profession in 1946 and have since been slugging along for the past 56 years) who have been practicing engineering for a long period of time have been attempting to resolve some of the identified problems throughout the tenure of our practice ..some effectively and some not so effectively.. and we could make valuable and significant contribution towards this effort. But this task has now to be taken up by the younger generation. And as is apparent from this conference, there is no dearth of younger and willing engineers who will take it up earnestly and with full dedication.

Efforts have been made earlier to address the issues of

- Status of engineers in society
- Enginners Bill
- Relationship of architects and engineers
- Direct appointment of structural engineers
- Engineers as prime consultants for industrial job
- And son on

To cover all this effort in detail will take a couple of days. I will seek the indulgence of all the participants for not having compiled this "Status Report" within the stipulated time.(during the past few weeks my old age made its presence felt and I have not been very effective). I will send it to Sudhir and Alpa next week.

Before I end I would like to point out that the earlier piece I had sent on Architect and Engineer inter-relation is an extract from an article which was written by me in 1987 when the then the chairman of HUDCO had made a very determined attempt to make the profession of structural engineering completely subservient to the architectural profession. Some of us at that time worked hard to thwart this attempt and had succeeded. However it appears that what ever I had written 15 year ago has relevance even today.

It is sad that this struggle which was started at that time has not completely succeeded and has still to be carried on

Congratulations again. Best wishes Sudhir. Alpa Shirish,Dr Vakil and all the participants

Mahendra raj

M. Hariharan [Sat Aug 31 21:54:00 2002]

"Prof. Anjur R Chandrasekaran" wrote:

> As a corollary, I feel that some of the damages during Kutch earthquake could be due to deficiencies in IS:1893-1984 and not entirely 100% due to the so called greedy contractors.

This is very possible. One of my concerns has always been that seismic design code does not take explicit cognisance of post-earthquake use of the structure, if it survived the quake. The response spectrum is scaled down by a factor of 4 or 5 (or even more) for an elastic design. This would mean that an earthquake of a much smaller intensity could make many members reach the equivalent of yield, before ductile behaviour and energy absorption comes into play.

For example, consider steel framed structure. Consider a Reduction factor of 5 in the spectral ordinate. One third increase in permissible stresses is allowed in member design. Consider effective load factor to be 1.7 (to formation of plastic hinge). This would mean that the structural element would reach the equivalent of plastic hinge if the earthquake intensity (in terms of PGA) is $= (100\% / 5) * (1.7 / 1.33) = 26\%$ of the design PGA.

The structure may reach serviceability limit state if the PGA is about 20% of design PGA. This somehow doesn't seem adequate.

Offshore structures around the world are designed using American Petroleum Institute's API RP 2A Recommended Practice. As per this, the structure should not collapse under a rare intense earthquake, about twice the design PGA. This is to be proved by a collapse analysis.

I feel the offshore standard is too conservative, and the onshore standard is too unconservative. The structure should be elastic for at least 50% of design PGA, so that minor earthquakes do not cause serviceability problems thereafter.

Is this too conservative or expensive a proposition by onshore standards?

M. Hariharan

Prakash Kadam [Sat Aug 31 21:54:04 2002]

thanks sudhir & alpa for lovely moments.

nice to have participated alongwith Dr Shirish Patel(our Don Bradman-we always wished to get good grades in b tech , m tech dissertations from him in late sixties),Dr.Nori & many stalwarts
regards to all prakash kadam b tech-68,m tech-70(iit-mumbai)
consulting engineer

Manamohan R Kalgal [Sat Aug 31 22:18:00 2002]

Dear Dr. Bhattacharya

I am not regular in reading all mails of e-conf.

I don't know if Aravind has informed you that there is one more institue in Bangalore called INSTRUCT (which incidentally is not funded by Govt. I think) serving the cause of training working personnel. It has been arranging "Masons' Training" at various places in Karnataka successfully for several years now

Dr. M. R. Kalgal

Manamohan R Kalgal [Sat Aug 31 22:27:01 2002]

Dear Participants,

Bashing is of no use whether it is young engineers or the educational institutions. What efforts the industry people have made to interact with the syllabi makers in the universities? It is unfortunate that for many years it was taboo for a teacher to interact with industry. They thought he is making money by "indulging" in consultancy. People who have no exposure to industry, by their "seniority" become syllabi makers. The curriculum has no alloction for industry interaction in most universities. The associations have to bridge the gap between the industry and institutions. Fortunately, oflate, AICTE is asking universities to prove that they interact with industry. Let's all try to find a solution rather that industry blaming educators, and educators blaming industry. I agree with Sri Shirish Patel that fresh engineers are definitely not to blame.

Regards

Dr. M. R. Kalgal

Vasant S. Kelkar [Sat Aug 31 22:39:00 2002]

I would like to elaborate further on Architect- Structural Engineer Interrelation presented so well by Mr. M. Raj.

It is sad that most clients prefer to appoint only an Architect and leave appointment of other professionals to his whims and fancy.

One can understand if a doctor or a businessman, wanting to have his first bungalow built, says that he will just appoint an Architect and leave everything to him - since such a person may not even know the details of roles played by other professionals like a Structural Consultant in construction of his bungalow. But one gets surprised that companies involved regularly in construction projects such as, for example, Tata Hsg. Development Corpn., refuse to appoint structural and other consultants directly but route their appointment only through the architect appointed by them. They do not understand that it is in their interest to select and appoint (with rational fees) all professional consultants directly. All such companies give the same excuse - that they want to deal with only one professional who will be responsible for all his subconsultants. They do not want the trouble of coordinating the work of various consultants - although in reality, during the progress of a project they have no alternative but to contact and pursue structural and other consultants directly (and not through the Architect's office) for their drawing requirements or site problems and for coordinating their activities!!

Structural Consultant's role thus becomes like that of Anaesthetist who will generally get appointed only by the operating Surgeon and rarely directly by the patient. He gets much less identity (and remuneration) in a project than what is due considering that his work involves the maximum risk amongst all professionals involved in the project.

Structural Consultants must make efforts to educate clients on this. On my part whenever I see ads inviting services of Architects for any project, I have been writing to those clients, through ISSE (Indian Society of Structural Engineers, Mumbai), explaining how it is in their interest to also directly appoint a Structural Consultant for their project. Many such letters have been sent in the past. If more engineers take up this issue with their existing and prospective clients, we may perhaps see a change in their outlook.

There are also several other matters affecting the day-to-day working of a Structural Consultant which I could write about. But this in part II if there is still time left before the conference ends. I will mention just one minor issue below:

With the advent of technology, many architects now give their drawings on floppies or send them by email asking the Structural Consultant to plot hard copies of the same in his office. Can a Structural Consultant afford to spend the additional time and money required to plot architectural drgs. of various architects in his office? In consultation with predominantly architectural bodies like PEATA, certain norms of practice must be decided such as, for example, -

Architect should be responsible for giving hard copies of all his drgs to the engineer plus autocad files of only the floor plans(which the engineer can use for making structural plans).

Vasant S. Kelkar

Manoj S. Medhekar [Sat Aug 31 23:16:01 2002]

Dear Fellow Professionals:

I must congratulate Professor S.K. Jain and his team at NICEE -IITK for organizing and conducting this e-conference on Professional Issues in Structural Engineering.

I am a practicing structural engineer in Edmonton, Alberta, Canada, and would like to share information and my thoughts on the following issues that have been raised at this e-conference.

Regulation of Engineering:

(a) In Canada, the legal right to regulate the profession falls under the provincial (state) authority. A legal Engineering Act is in effect in each province. This Act is "closed", that is, it protects the title "Professional Engineer" and prevents non-members from practicing engineering. A licence is required to practice engineering in every province. To administer the Engineering Act, each province has a self-regulating Association of Professional Engineers. Members of the governing council of this Association are elected by fellow members, and must approve, by vote, regulations and by-laws. This Association conducts the Professional Practice Exam and grants the "Licence to Practice" to its members (engineers).

(b) In the USA, the state governments establish the regulations and licence the engineers directly.

Currently, the Licence to Practice engineering in Alberta requires a minimum of 4 years of experience in the industry (with only 1 year credit allowed from graduate study), and securing a pass mark at the Professional Practice Exam.

This mandatory exam tests the engineer's knowledge of:

- (i) The Code of Ethics
- (ii) The Engineering Act
- (iii) The Occupational Health and Safety Act
- (iv) The Legal aspects of practicing engineering
- (v) The Concepts of Professionalism

Initiatives to increase the interaction between Universities and the Industry:

(a) The local engineering associations can play a significant role here. Practicing engineers and students should be encouraged to enroll in the local association and support its activities.

(b) The undergraduate program should encourage students to work in the industry either during summer vacations or in a separate semester. Many universities in India already have such a program in effect. This makes the students aware of what is out there in the industry and also makes the industry aware of the knowledge, skills, and enthusiasm of the young engineers.

(c) Invite local practicing engineers and alumni to talk to the students about projects. This will make students aware of the work going on in the industry and how concepts taught in school are actually put into practice.

(d) Those involved in teaching engineering (Professors) should offer continuing education courses and workshops for practicing engineers. This keeps the practicing engineer informed about the latest engineering advancements and techniques. Professor S.K. Jain has been actively involved in disseminating earthquake engineering knowledge through his workshops.

(e) Distance education - provide continuing education via the Internet. This would encourage practicing engineers to upgrade their knowledge and skills without having to take time off work.

Manoj S. Medhekar

Sudhir Badami [Sat Aug 31 23:28:02 2002]

It has been a great event and will take a while to pick various points and compile them into some coherent document to take it further. I also notice that Prof Sudhir Jain and Ms (or should it be Er. ?) Alpa Sheth have become household names with the participants. To them and their teams at Kanpur (and Mumbai/Ahmedabad) a big thanks. I am sure some of us would take the trouble of doing what Sudhir and Alpa would be doing of compiling and send these over to them.

Lot of matter has appeared on the e-conference and I feel I would be repeating some which have been written so well. There are some methods that I have thought of and these need to be gone through some rethinking on my part before putting them up for consideration.

It was also nice to see so many of old friends take part in the event. Some personal hello!

The pace of the econference has been terrific. Nearly the same number of postings as the two week e-conference on earthquake codes held earlier in February.

Relentless efforts are necessary to achieve any objective especially where commercial/religious/entertainment considerations predominate. I have been reasonably successful in curbing noise by relentlessly pursuing the police to implement the provisions of law. I would simply suggest that we take up this issue of Noise Pollution individually and on real field, while the Professional Issues in Structural Engineering in India are being tackled by some others of us. I will arm you with some knowledge on the "Noise Pollution - What You Can Do". Visit the website below. Take it up seriously since the festive season is just ten days from today, considering that tonight's Krishna Janmashtami is just about over. If you start this year, you might start getting success next year. I am mentioning this because here we have an immediate opportunity to be involved in a Civic Issue.

Heartiest Congratulations to all of us for openly putting up our views and warm regards to Sudhir J and Alpa and their team.

Sudhir Badami

Moderators [Sat Aug 31 23:46:01 2002]

Dear All,

Rounding up this e-conference is a hard task for us-It essentially means saying goodbye or at least au revoir - The past 6 days has succeeded in establishing one thing - a strong camaraderie- In a virtual room, here we were, all of us debating energetically about our profession and what needs to improve it. It also proved one thing - that there exist a critical number of people in our profession who are passionate about what they are doing and they can therefore make a difference.

Out of about 1,600 members on the conference, about 130 members from a dozen countries wrote messages: a very good ratio indeed. The 290 messages if printed back to back on font size 10 will require about 175 sheets. It is a great wealth of information on professional issues in structural engineering in our country. The detailed proceedings of the e-conference are available at www.nicee.org.

As we had hoped, we have been able to define the ills that beleaguer our profession. To briefly identify them:

- Poor perception of the structural engineer in the society
- Lack of a body that adequately represents the concerns, duties and rights of the

structural engineer

- Need for a certification system
- Very poor compensation (fees) for the amount of work and responsibility that an engineer carries.
- No clear Code of Ethics
- Degrading standards of technical education
- No mechanism for continuing education

We further agreed in principle that the way ahead is to address these issues by having

- Training programs for continuing education
- More and better quality of Conferences and Workshops
- Camps for young engineers
- A professional body exclusively for representing the structural engineer
- Active discussions with ECI for ensuring expedient tabling of Engineer's bill
- Mentorship
- More Industry –Academia interaction.
- Resource Base for Engineers

We have already had some individuals and organizations volunteer for some of these tasks- but we have a long, long way to go. This is just the beginning. The e-conference was a facilitator for all of us to get together. Now it is up to some of the engineers in this e-conference with leadership skills to take up the tasks mentioned in the conference and for all of us to provide our time and resources in assisting in any of the tasks that most excite us.

Perhaps one must not say thanks for participation in the e-conference. – after all, we all should take equal ownership of this e-conference but a special appreciation goes out to Mr Shirish Patel for kick-starting the e-conference on the right note.

Our special thanks go out to the three volunteers Hemant Kaushik, Snehal Kaushik and Parvati at IIT Kanpur who have worked around the clock to manage the e-conference.

With best wishes,

Alpa Sheth and Sudhir Jain