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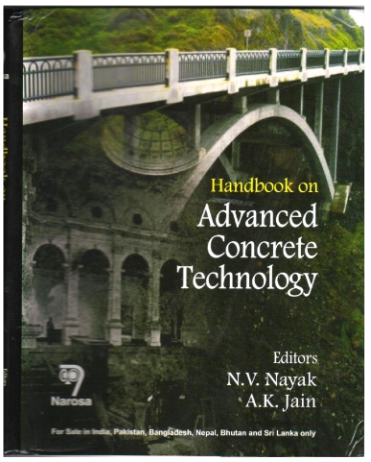
ICI UPDATE
An Electronic-Bulletin from the Indian Concrete Institute



Hand Book on 'Advanced Concrete Technology' authored by more than 25 Eminent Experts is available at a discounted price of Rs.650/- for ICI members only. Postage extra. Please contact Ph : 044-24912602 ; email : ici4@airtelmail.in.

From the President's Desk

Concrete structures, in many a case, show sign of premature distress and as a result not able to perform satisfactorily during its designed life span. We, civil engineers, face the challenges of i) repair and rehabilitation of the distressed structures ii) Proper maintenance and iii) Design and construction of durable concrete structures.

In our country we encounter structures in severely damaged and distressed condition due to lack of proper maintenance. Periodic maintenance may avoid the problem in some of the cases.

Concrete structures should be designed and constructed considering its service environments. The related issues are durability design, environmental exposure condition, transport mechanism, service life prediction etc. Concrete should be engineered considering its environmental exposure condition. Concrete structures may be made more durable with reduction in its porosity. This may be achieved with the introduction of supplementary cementitious materials like Fly Ash, Silica Fume, GGBS etc. together with using low water cementitious material ratio. Depending upon the aggressive nature of the environment, protection to concrete structures may be thought of right from its construction stage. A number of testing procedures related to assessment of durability has been developed in recent years and these should be utilized more and more for evaluation of the newly built concrete. All these issues need to be addressed through codal provisions / guidelines.

Repair and Rehabilitation of concrete structures, showing signs of distress, is the need of the hour. Lot of these activities have been going on in different parts of the country. One area of concern is the durability of repaired structures. Very often we see the repaired structures showing sign of distress within a few years.

ICI has taken a number of initiatives to create awareness on this issue. IIT Madras and IIT Bombay in association with Indian Concrete Institute will be organizing 1-Day National Workshop on Achieving Durable Concrete Construction Through Performance Testing on February 1, 2014 at IIT Bombay, Mumbai and again on 3rd Feb 2014 at IITM Chennai. You are also aware that ICI will be organizing the 2nd International Congress on Durability of Concrete (ICDC) from 4th to 6th December, 2014 in New Delhi in association with Norwegian Concrete Institute. Second announcement of this event has already been circulated. I would request all ICI members to actively participate in these events.

Lastly, I invite suggestions from all ICI members for the future activities of this great Institute.

Prof. S. Saraswati
President

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I request all ICI centres to inform the headquarters about their forthcoming activities well in advance. We have to ensure that there is no overlapping of seminars, workshops and conferences to be organized by different centres.

R. Radhakrishnan
Secretary General

ICI - NEW DELHI CENTRE:

1. Signing of MoU between ICI-ACI:

Er. Vinay Gupta welcomes

December 18th 2013 was an important day for both the Premier Institutes, Indian Concrete Institute & American Concrete Institute. An MoU was signed between ICI & ACI on this day. ACI was represented by Ms. Anne Ellis P.E., President and Mr. Ronald G. Burg P.E., Executive Vice-President and Indian Concrete Institute was represented by President Prof. S. Saraswati and Er. R. Radhakrishnan, Secretary General. The event was organized in a grand manner by ICI-New Delhi Centre.

Ms. Anne Ellis & Prof. Saraswati Lighting the Lamp

It was an outcome of the good efforts made by the Past and Present Presidents, Prof. R. Jagadish, Er. Vijay R. Kulkarni, Er. Jose Kurian & Prof. S. Saraswati. Dr. Gajanan Sabnis played a vital role in bringing both the Institutes closer to sign the MoU.

Er. Vinay Gupta, ICI Vice-President (N) welcomed the gathering and briefed the audience on how both in Institutes came closer to sign the MoU. Prof. S. Saraswati, President of ICI spoke about ICI, its evolution, activities and the current status. During her talk, Ms. Anne Ellis, President of ACI expressed her happiness to work together with ICI and Mr. Ronald G. Burg briefed about ACI and its activities.

Prof. Saraswati Addresses

Ms. Anne Ellis Addresses

Prof. Saraswati and Ms. Anne Ellis Signing the MoU

Ronald G. Burg P.E. & Er. R.Radhakrishnan Signing the MoU

Dignitaries

The MoU will enable both the Institutes to exchange Technological Information, Technical Documents and for Collaborative Approach in conducting programmes for the promotion of Concrete Technology.

A cultural programme depicting the South Indian art of Kathakali was also organized.

Cultural Programme

Er. Jose Kurian with Guests among others

A Section of Guests

Er. K.P. Abraham delivering Vote of Thanks

Finally, Er. K.P. Abraham, Chairman of ICI New Delhi Centre proposed vote of thanks. Around 100 Dignitaries from various Government Departments and other Professional Bodies, Governing Council Members and other Members of ICI attended the programme.

2. Workshop on Code of Practice for Concrete Road Bridge & IRC:112:2011

Dignitaries Lighting the Lamp

A technical workshop on the new code IRC:112:2011 was organized by ICI-NDC between 02nd & 04th May 2013 in PHD House, New Delhi. The event was supported by IABSE and IAStructE. Apart from Workshop material, a copy of the code IRC:112:2011 was given away to the participants. The three days Workshop was divided into 9 exhaustive sessions, which was attended by over 150 Delegates. Deliberations were made by

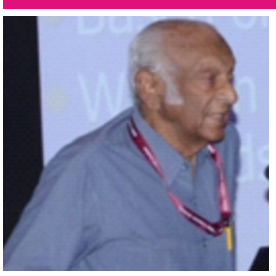
Authors of the code as follows:-

1. Mr. Ninan Koshi, Convener, IRC:B4 Committee
2. Mr. T. Vishwanathan, Member Secretary, IRC: B4 Committee
3. Mr. S.G. Joglekar, Member Secretary, IRC: B4 Committee
4. Dr. A K Mullick, Member Secretary, IRC: B4 Committee
5. Dr. A.K. Mittal, Member Secretary, IRC: B4 Committee
6. Mr. Vinay Gupta, Member Secretary, IRC: B4 Committee
7. Mr. Alok Bhowmick, Member Secretary, IRC: B4 Committee
8. Mr. Umesh Rajeshirke, Member Secretary, IRC: B4 Committee

The workshop was widely appreciated.

A Section of the Audience

SPEAKERS



Mr. Ninan Koshi

Mr. T. Vishwanathan

Mr. Er. Jose Kurian

Mr. Vinay Gupta

Mr. S.G. Joglekar

ICI - PUNE CENTRE

Technical Lecture:

ICI Pune Centre organized for a technical lecture on 23rd Nov 2013 and again on 24th Dec 2013 at the Institution of Engineers premises. Dr. Amar Singh was the Guest Speaker. The programme was sponsored by Duracrete and more than 120 Engineers attended the programme. Mr. Nangre Patil, Chairman of the ICI Pune Centre coordinated the activities.

Inaugural address by Mr. Nangre Patil

Dr. A.J.Singh delivers lecture

Audience

ICI - UTTARAKHAND CENTRE

Technical Lecture:

A technical lecture on Nano-Technology in construction by Prof. Wenzhong Zhu (School of Engineering, University of West Scotland, Paisley) was organized on10th January, 2014 by ICI Uttarakhand Centre. The inaugural address was delivered by Dr. Achal Kumar Mittal, Chairman, ICI Uttarakhand Centre wherein, he briefed the gathering about ICI and its activities. He also welcomed all the ICI Members present and the Guests from UK. Dr. Mittal encouraged the Members of ICI Uttarakhand to come forward and organize more and more technical activities under the banner of ICI Uttarakhand. More than 50 ICI Members participated. Faculty Members from IIT Roorkee, Scientists from CSIR-CBRI and a few students were among the participants in the programme. Prof. Wenzhong Zhu

discussed about different types of concrete and application of Nanotechnology in many areas of concrete. He spoke on different areas of ongoing concrete research in their laboratory as well as at different laboratories of European Union. He discussed the technique of Nano-Indentation to assess the micro mechanical properties of concrete. He also presented some case studies and future trends of research which gave insight for the requirement of research in this field in India. The lecture was followed by question and answers session by the audience. Dr Umesh Sharma, Secretary, ICI Uttarakhand Centre proposed vote of thanks. The invited lecture was followed by dinner for all the Guests present. This was an event marking the reactivation of the Centre. Dr. A.K. Mittal deserves all appreciation.

Dr. A.K. Mittal Welcomes the Guests


Prof. Wenzhong Zhu delivering the Lecture

OBITUARY


Dr. M. Ramaiah

Dr.M.Ramaiah (82), Founder-President of Indian Concrete Institute passed away at Chennai on 8th January 2014. As Director of SERC, he had the vision to set up ICI as a Society and provided all the inputs required including office space and services of his senior colleague Er.Zacharia George, to be its first Secretary-General. The initial rapid growth of ICI can be attributed to this team. Dr.Ramaiah also instituted an Annual Endowment Lecture at ICI out of his personal funds. Dr.Ramaiah was an eminent Engineer-Scientist and led a number of Research Projects and published large number of papers which were referred in Civil Engineering world. He was a close associate of late Prof.G.S.Ramasamy, the first Director of SERC.

Aptly, Dr.Ramaiah succeeded him as second Director of SERC Chennai. He was instrumental in the rapid growth of SERC under UNDP funded programme under which a Tower Testing Station and Structural Dynamics Labs were set up at SERC. Later, he was with the United Nations Centre for Human Settlement (UNCHS) at Nairobi for long years, as Head of Projects.

Dr.Ramaiah was also a philanthropist, helping several individuals and institutions generously. He donated liberally to the building fund of ICI Head Quarters. He was a brilliant student, holding first rank in all classes. He attended the best of Engineering Institutions for his education. Annamalai University - TN for B.E. ; Indian Institute of Technology, Kharagpur for M.Tech and University of Missouri (USA) for Ph.D. Dr.Ramaiah held Fellowship of several professional bodies. He has also written books on social and religious subjects. Dr.Ramaiah is survived by his wife and 3 children. All of them are well settled in USA.

ICI and its members will always remember his valuable contributions to Civil and Structural Engineering profession and particularly to ICI.

ICI fraternity salutes this visionary forever and prays the Almighty for his soul to rest in peace.


Er. Dhananjay Divekar

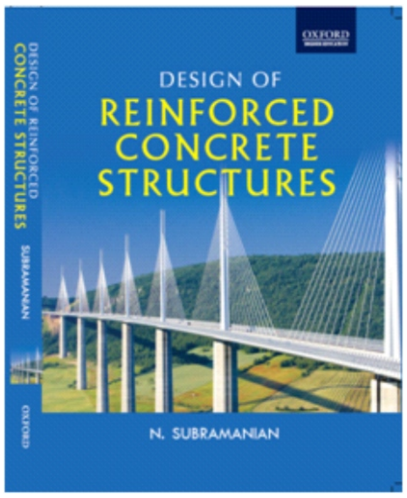
With profound sorrow, we inform the sudden demise of Er. Dhananjay Divekar on 28th Dec 2013.

Apart from being a member of Indian Concrete Institute from Pune Chapter, he was also a member of AESA, Pune. He was a certified valuer and was a Silver Medalist for his paper on "Cost Estimation".

May his soul rest in peace.

R. Radhakrishnan
Secretary General
Indian Concrete Institute

BOOK REVIEW



The book on Design of Reinforced Concrete Structures authored by Dr N Subramanian and published by Oxford University Press is comprehensive and well organised. The subject matter has been discussed in twenty chapters. Each chapter is suitably subdivided into number of sections and ends with a summary, a list of review questions and a detailed list of references. Worked out examples for design of sections under single and combined load effects are included. A number of illustrative figures both in the form of schematics and photographs are provided in all chapters. Interesting case studies are included in the book, which helps in breaking the monotony of serious reading.

While emphasise has been given to IS :456-2000 Indian Standard Code of Practice for Plain and Reinforced Concrete, comparative evaluation of provisions given in a number of international codes of practice are included. Though computations of dead loads, super imposed loads, wind loads , seismic loads and other loads on structures is briefly discussed in the book, recourse has to be taken to the corresponding codes indicated for more precise evaluation. For example, while discussing the dynamic effects of wind the book says" dynamic response factor instead of gust response factor " has been included in the revised draft code . IS :875- Part 3 , Wind Loads. The latest revision, about to be printed retains gust response factor ,and gives expressions for intensity of turbulence, mean hourly wind speed , back ground factor , energy ratio , and size reduction factor . In the list of symbols the unit of design wind pressure is indicated as N/mm^2. It is to be corrected as N/m^2.

Comprehensive coverage is provided for design of sections under flexure, shear and torsion. In addition to vertical stirrups, alternate forms of web reinforcement such as single and double headed studs have been discussed. The strut and tie model has been briefly discussed for design against shear. Columns under axial loading, axial loading and uni- axial bending , and axial loading and bi-axial bending have been covered adequately. The chapter on bond and anchorage gives useful information on different types of mechanical splices.

Generally if detailing provisions given in codes are satisfied, the structural elements are deemed to satisfy serviceability criteria. It is heartening to note that a full chapter has been devoted to computation of deflection and aspects relating to crack control.

The ductile detailing provisions as suggested by IS: 13920-1993, Indian Standard Code of Practice for Ductile Detailing of reinforced Concrete Structures subjected to Seismic Forces has been referred at number of locations. The author in his preface states that he has included these in the light of its importance in the Indian context. A brief write up on modification to stress strain characteristics of confined concrete would have enabled the user to evaluate the variation of strength with deformation under ductile detailing till failure using the methodologies suggested in the book. This would enable performance based design, which is catching up with respect to structures against extreme loading and accidental over loading. (provisions of FEMA have been cited; push over analysis for seismic safety is being discussed in many forums.)

In addition to these, the normal topics in any book dealing with design of reinforced concrete structures such as design of one way slab, two way slab, footings and pile caps, retaining walls, flat slabs, and staircase have been adequately covered.

Design of joints and its efficiency are extremely important to realise the expected performance of structures, particularly in multi storey multi bay structures. Anchors are coming in a big way particularly with respect to repair and rehabilitation. The chapter on design of joints provides the concepts, the terminologies, the force flow, the interactions, the stringent requirements, etc As in the case of other chapters , a long list of references is available. The designer may refer to the original literature if he is interested.

Over all the book has compiled a lot of available information from various sources. The design of reinforced concrete elements and structures based on IS 456-2000 provisions has been elucidated with number of worked out examples. While teaching under graduate course , the teachers have to select appropriate topics. The book will be extremely useful for the post graduate course, and serve as a reference book for designers. The references included will help researchers and academicians in their

Dr. N. Lakshmanan
Ex. Director, SERC, Chennai

STRUCTURAL IMPLICATIONS OF ARCHITECTURAL CONSIDERATIONS IN ANALYSIS AND DESIGN

Prof. A.R. SANTHAKUMAR
Former Dean (Civil Engineering)
Anna University Chennai- 25

Paper presented in All India Seminar on **"Structural Aspects of Architectural Engineering in Property Development"** on September 20-21, 2013, Chennai

ABSTRACT:

While provisions of structural design rules are accomplished through analysis and code recommendations, architectural schemes and decisions are essential for building aesthetics and convenience during service performance. The building architecture must permit an effective structural design. At the same time functional and aesthetic aims of the structure cannot be compromised. This paper discusses the architectural decisions that affect structural performance. This in turn leads to some consideration of the architect- engineer relationship as it affects structural design and performance.

1. INTRODUCTION

The architectural design decisions that affect buildings structural performance can be grouped into the following three categories.

1.1 The building configuration

This defined as size, shape and proportions of three dimensional form of the building. Form engineer's point of view configuration refers only to the geometric properties of the building form.

1.2 Structurally restrictive architectural design

This refers to the locations of columns and walls and other building details as per architects requirement for functionality and /or aesthetics.

1.3 Hazardous non structural components

The design of nonstructural components is architects responsibility. If they are inadequately designed with respect to the structural requirement. They present a hazard to life.

2. CONFIGURATION AND THEIR EFFECTS

Building configuration can be defined as building size and shape the later includes the characteristics of proportion. In addition one definition includes the nature, size and location of structural elements. These are often determined by architectural design and are subject of mutual agreement between architect and engineer. In addition, the architectural decisions influence, the nature size and location of non structural components that may affect structural performance either by altering the stiffness of the structural member or changing the mass distribution of the building. This particularly applies to infill walls which may have a dramatic effect on the effective height, stiffness and load distribution of the columns

For the architect the building configuration or concept is influenced by three main factors

a) Urban design, business and real estate issues

b) Planning and functional concerns

c) Image and Style

Amongst three "safety of inmates" is often forgotten Engineers can accept the problems of zoning and building function in determining configuration because they fit into their rationalist world. It is the third influence , the need for the building to present an attractive, interesting, unique or even sensational image to the outside observer inprefernce to inmates' safety, that engineers cannot accept. Here is where the irrational artist taken over, and the laws of physics and economy may be violated.

An historical review of the evolution of structural forms reveals the following :

a) The minimal structural form provided the architectural aesthetic which was in tune with the spirit of the age, aesthetically, economically and politically

b) What we now call as irregularities were indeed critical elements of the new architectural aesthetic.

c) The elements were made possible by the use of the engineered structural frame and by a new level of architect / engineer collaboration.

Thus the discussion of the configuration influence on seismic and other structural performance becomes the identification of configuration variables that affect the distribution of forces . These variables represent irregularities or deviations from " regular" configuration that is ideal with respect to dealing with lateral forces.

What are the characteristics of design that make it "Regular" and also make it so good- considering architectural configuration and the disposition of structural elements? Any engineer will recognize them. However it is worth listening them.

Low height to base ratio
- minimizes tendency to overturn

Equal floor height
- equalizes the column/wall stiffness

Symmetrical plan shape
- Reduces torsion

Identical resistance on both axis
- Balanced resistance in all directions

Uniform sectional elevation
- Elimination stress concentration

Maximum torsional resistance
- Shear walls at perimeter

Short spans
- low unit stress in members

Redundancy
- Toleration of failure of some members

Direct load path
- No stress raisers

3. METHODS OF ANALYSIS

Majority of designs for lateral resistance be it seismic or wind use the equivalent static lateral force method. This involves estimating a base shear and then distributing the resulting forces through the structural elements of the building.

Two important concepts apply for regular structures.

First, the linearly varying lateral force distribution given by equivalent static lateral force formulae are reasonable and conservative representation of the actual response force distribution due to earthquake.

Second when the design of the element in the lateral force resisting system is governed by the specified load combination, the cyclic inelastic deformation demands will be reasonably uniform in all elements without a particular concentration in any part of the system. The acceptable level of inelastic demand is thus reasonably represented by the R(Response Reduction Factor) factor for the system.

However, when a structure has irregularities then these concepts, assumptions and approximations may not be reasonable or valid and corrective design factors and procedures are necessary to meet the design objective.

It is safe to say, based on studies of building inventories conducted in Chennai that half the buildings that have been designed in the last few decades do not confirm to the simple configuration upon which the code is based.For these designs special analyses involving dynamic behavior coupled with engineering judgement based on experience is necessary.

The normal code based procedures are likely to be inadequate in the following cases

1. Building with irregular mass and stiffness properties in which case simple formulae for vertical distribution of lateral forces may lead to erroneous results.

2. Buildings(regular or irregular) in which the lateral motions in two orthogonal directions and torsional motions are strongly coupled

3. Buildings with irregular distribution of storey strength leading to possible concentration of ductility demand in a few stories of the building

4. GENERAL BUILDING CHARACTERISTICS

These are issues relating to the building configuration as whole and apply to all configurations

4.1. Size, proportions and symmetry

The effect of the building period must be considered in relation to the period of ground motion and if amplification occurs the effect of an increase in height may be quite disproportionate to the increase itself. Thus doubling the structure height from 5 to 10 stories may, if amplifications occurs, result in a four or five fold increase in force.

The present approach is not to legislate on height limits but to enforce more specific seismic design and performance criteria.

Generally urban design, real estate will be more significant and earthquake performance must be engineered with height taken as a prime factor for checking.

The proportions of a building may be more important than its size. For tall buildings the slenderness aspect ratio (Height / least depth) is a more important consideration than height alone. Authories like Dowrick suggests limiting this aspect ratio to 3 or 4 explaining.

"The more slender a building, the worse the overturning effects of an earthquake and greater the seismic stress in the outer columns, particularly the overturning compressive forces, which can be very difficult to dealt with".

All the codes and textbooks prefer symmetrical forms. The two basic reasons for this are eccentricity between the center of mass and resistance will produce torsion and stress concentration.

However a building with re-entrant corners is not necessarily asymmetrical(a cruciform shape) but still is irregular. Hence symmetry is not sufficient but should be coupled with simplicity.

Finally it must be recognized that the architectural requirement will often make the symmetrical design "impossible". In such cases, depending on the size of the building, it should be possible to subdivide the building into simple elements.

4.2. Plan Density, perimeter resistance and redundancy

Structural forces are generally larger at the base of the building. The bottom storey is required to carry its own lateral load in addition to the shear forces of all the stories above. Therefore there is a downward build up of gravity loads. At this same lower level programmatic and aesthetic criteria are often imposed on building that demand the removal of much solid material as possible. This architectural requirement is the opposite of the most efficient seismic configuration which would provide greater intensity of vertical resisting elements at the base where they are "most" needed.

In Fig.1 although both configurations are symmetrical and contain the same amount of shear walls the locations of walls is significantly different. The walls on the right form greater lever arms for resisting overturning and torsional moments. In resisting torsion with the center of twist of the symmetrical building located at or near the geometric center, the further the walls the better. Placing the walls on the perimeter is desirable wherever they are walls or columns or braced frames in the case of steel structures.(Fig.2)

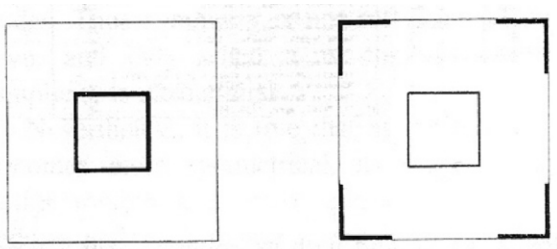
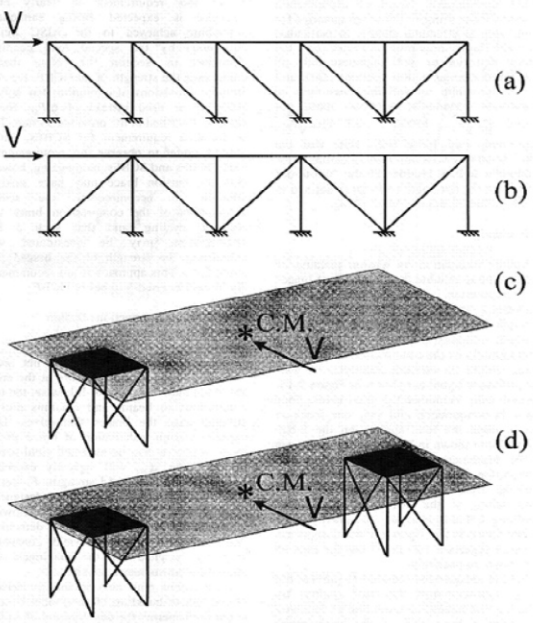


Fig.1.Location of Lateral Load resisting Elements for an RCC building

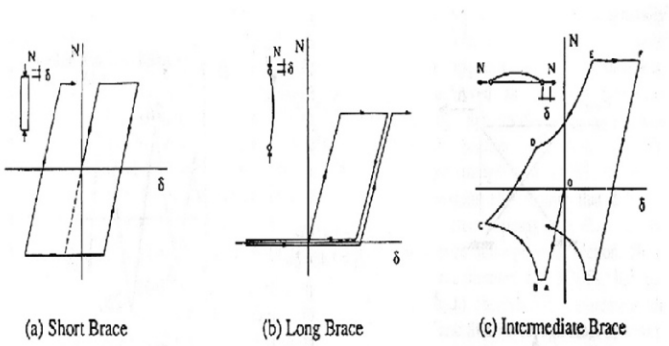


Brace configurations to ensure structural redundancy and balanced energy dissipation between compression and tension members: (a and c) poor configurations; (b and d) acceptable configurations

Fig.2 Location of Lateral Load Resisting Elements For A Steel Structure

The detailing bracing and connections are often cited as a key factor because the connections give more integrated and interconnected a structure leading to more load redistribution possibilities with attendant energy dissipation.

The design characteristic of redundancy plays an important role in structural performance and is significant in several aspects, most especially because redundant design will almost certainly offer a direct load path as well as the alternative load path. (Fig.3 shows bracing location offering redundancy for steel PEB structure)



Schematic hysteretic behavior of braces of short, long, and intermediate slenderness

Fig.3 Brace behavior

5.SIGNIFICANCE OF IRREGULARITIES

In this section a specific architectural irregularities as it affects structural performance is examined.

5.1.Re-entrant corner

The reentrant corner or inside corner is the common characteristic of the overall building configuration whose plan is L T H or + or combination of these.

There are two related problems created by these shapes.

Firstly, they produce variation in stiffness and hence the differential motion.

This result in stress concentration. In fig.4, when ground motion occurs, the separated buildings behave well in spite of the fact that the deflection of the two buildings are unequal.

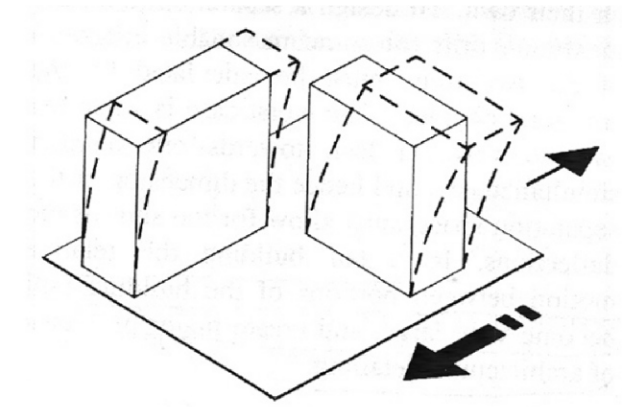


Fig.4 Separated building behaves well

However, when the two buildings are tied together, they pull and push each other causing stress concentration and failure (Fig.5)

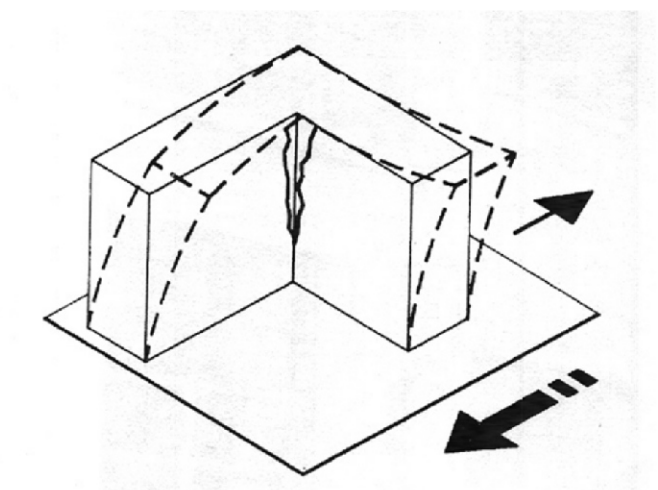


Fig.5 L Shaped building Cracks and Fails

The second problem is torsion. The center of mass and center of rigidity in such buildings cannot coincide. It can be seen that the stress concentration and torsion effects are interrelated.

Architecturally, redundant corners create a useful set of building shapes enabling larger plan areas to be accommodated in compact form while still providing a high percentage of perimeter rooms. Thus such configuration is common for high density housing and hotel projects in which habitable rooms are provided with windows.

There are two basic solutions to this problem: to separate the building structurally into simple shapes or tie the building together strongly at lines of stress concentration and locate resistance elements to reduce torsion. In the latter case, the collector at the intersection can transfer forces across intersection areas but only if the design allows for these beam like members to extent straight across without interruption. Walls for stiffening is even more efficient than collectors(Fig.6)

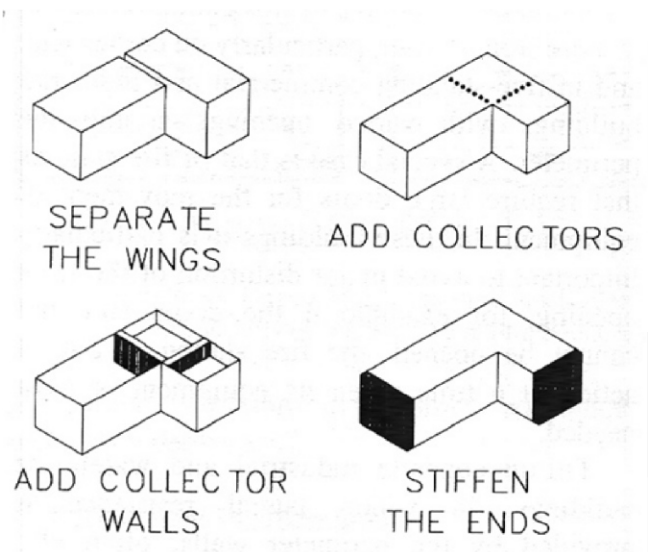


Fig.6. Solutions to L Shaped Buildings

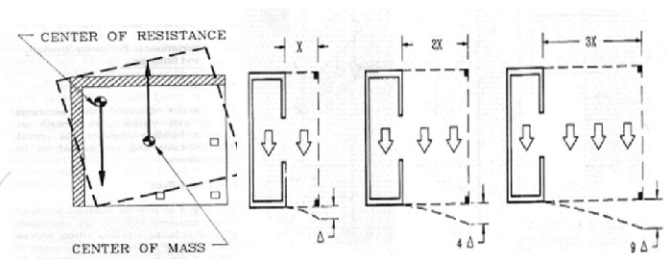
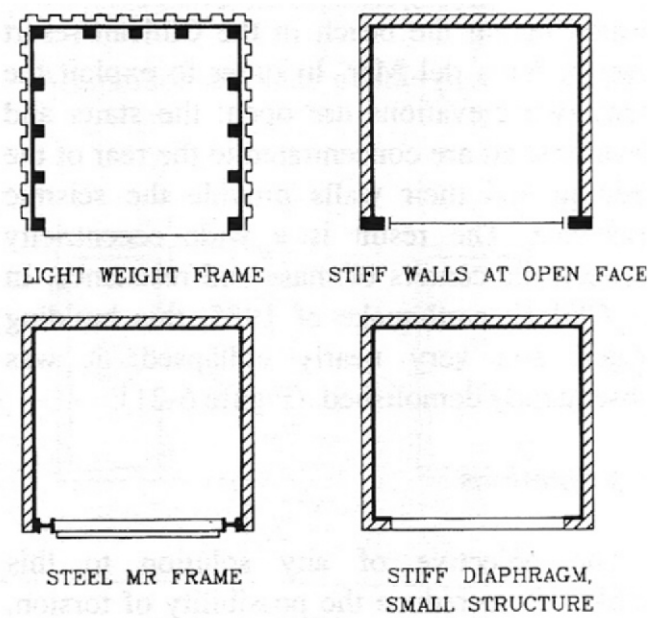


Fig.6.1 Leads to Torsion

Open front design: torsional deflection varies as the square f the length

6.OTHER IRREGULARITIES

The following other irregularities are commonly met with which constitutes a significant structural weakness. The solutions for such weakness could be found as indicated in the corresponding figures given.



Solutions to Shop front systems
Fig.7 Variation in perimeter strength/stiffness

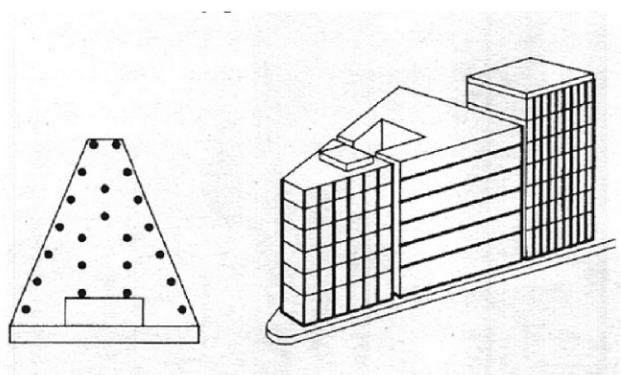


Fig.8 NonParallel systems

6.3.Soft storey (Fig.9)

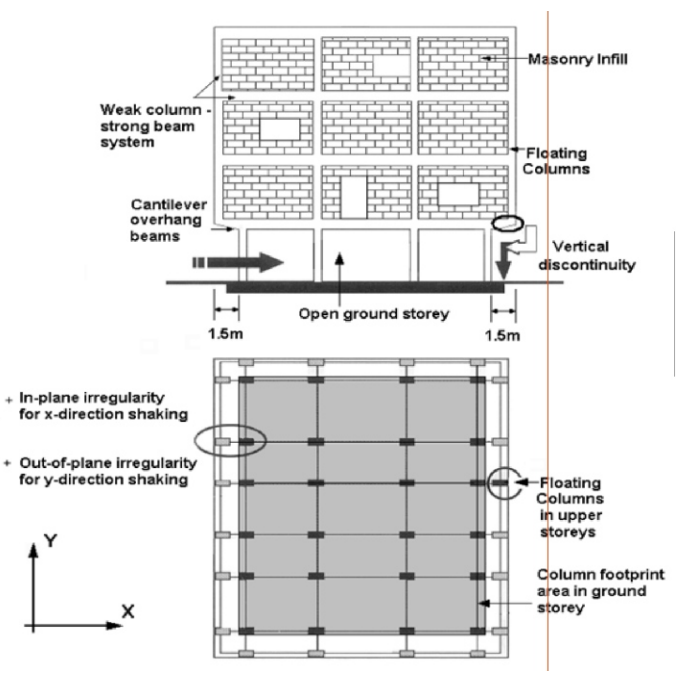


Fig.9 Soft Story

6.4.Variation in column stiffness in a storey (Fig.10)

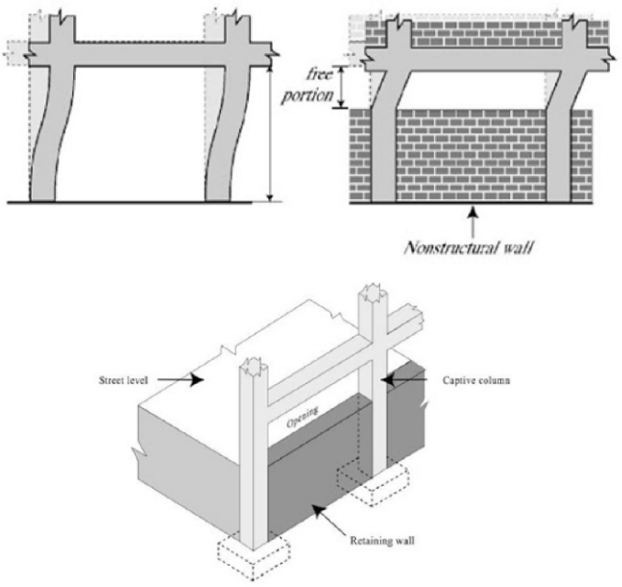


Fig.10.Variation of column stiffness in a storey

6.5.Vertical set back (Fig.11)

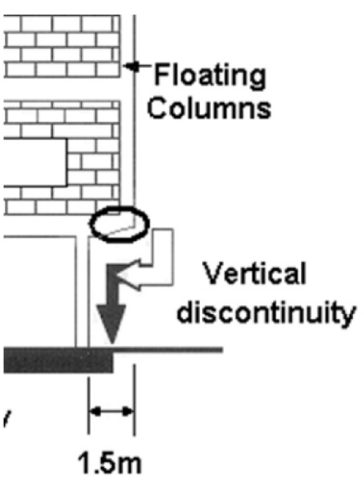
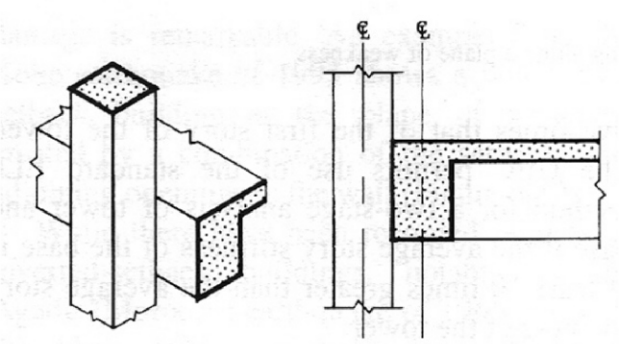
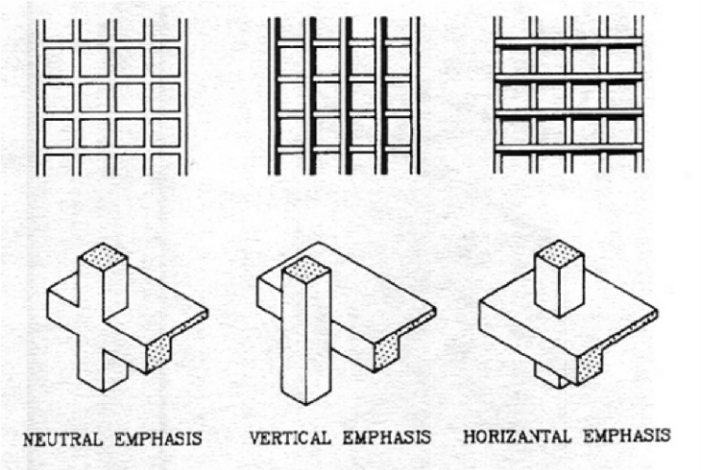


Fig.11. Vertical set back

6.6.Components and connections that affect load path (Fig.12)



Eccentric load paths created by architectural detailing of structural connection



Facades: differences in architectural emphasis

Fig.12 Components and connections that affect load path

7.The Architect/ Engineer Relationship.

In the conclusions I have ventured to give my thoughts on the relationship between Architect/Engineers

There are , of course in all instances in my own professional career I have built up close relationship and have communicated fruitfully with the architects. As an engineer I have participated in the early stage of design

The following thoughts are put up below to have good architect/ engineer interaction in the interest of the project on hand.

a. The engineer must communicate directly with the Architectural design team

b. The architect must take seriously his shared responsibility with the engineer for the structural performance of the infrastructure that is being created.

c. It is best to have mutual respect for each other and accommodate the domain needs in the interest of the project.

d. Understanding of the user's needs. The engineer should understand the architects vision and architect should accept the safety norms of engineer.

e. Collaboration must occur at the onset of the project before configuration is frozen.

In my professional work spanning more than 40 years , I had excellent cooperation with architects with whom I had collaborated and I still collaborating. The success of the infrastructure project squarely depends on the way both Architects and Engineers work together.

8.REFERENCE

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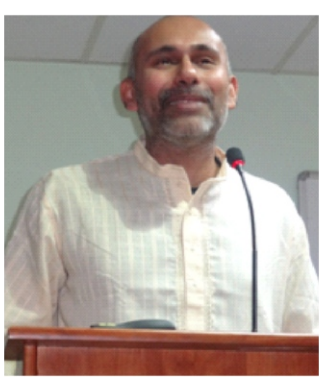
News from ICI Students Chapters

COLLEGE OF ENGINEERING TRIVANDRUM, THIRUVANATHAPURAM

Guest Lecture:



A talk on 'Personality Development' was organised by the ICI CET students' Chapter on 17-1-2014. HR Manger, NOKIA Mr. Tojo Eapen addressed the students and explained to them the importance of selecting a suitable job and to excel in it. He also emphasised the importance of relaxation. More than 100 students attended the talk and were very much impressed.

SRM UNIVERSITY - KATTANKULATHUR

1. SRM Student gets Bayer Young Environmental Leader Award

Mr.Soumyajit Paul of III year Civil Engineering was awarded the "Bayer Young Environmental Leader Award" for the year 2013 for his project 'Trans-Cons'. Bayer is a Crop Science, Material Science and Health Care Research and Marketing group. Mr.Soumyajit Paul cleared the initial rounds and a conference round where he had a telephonic conference with the judges to bring his project to the top 2 projects in India. He was then selected for the field trip in Germany between 10th and 15th of November. In the final evaluation round, every country was represented by an envoy and the participants had to present and sell their projects before a panel of judges. This trip was not only academically important but also culturally as he had the chance to move with 46 Envoys and over 50 Officials from different parts of the world

2. One Day Workshop on Ground Improvement for infrastructure Projects

SRM Society of Civil Engineers organized a one day workshop on 'Ground Improvement for Infrastructure Projects (GIIP-2013), in association with ICI, ASCE, UltraTech and The Masterbuilder on 26th November 2013 in the New Seminar Hall, Main Campus. This workshop was supported by 26 companies. The objective of this workshop is to provide a forum for the Academicians, Researchers, Professionals, Government Agencies and all those involved and interested to meet and discuss the latest developments and progress made in ground improvement techniques that are being used in geotechnical engineering projects world over. Ground Improvement, in a broad sense, is the alternative of any property of soil and treatment of ground so that the soil may be made to serve better for engineering purposes.

The workshop was inaugurated by Er. S. Kanappan, Chief Guest, Head & Chief Executive, L&T, Geostructure. Presidential address was delivered by Dr. M. Ponnavaikko, Vice Chancellor, SRM University. The workshop was felicitated and proceedings were released by Dr. T. P. Ganesan, Pro-Vice Chancellor (P&D), SRM University. Certificates were distributed by Dr. C.Muthamizhchelvan, Director (E&T), SRM University. The function was also graced with amazing lectures by Er. S. Kanappan on Ground Improvement for Infrastructure Projects, by Er. Minimol Korulla, VP, Maccaferri Environmental Solutions, New Delhi on Ground Improvement for Flexible Reinforced Soil Structure, by Er. Y. Hari Krishna, Director with Er.A.Madan Kumar, Tech Manager, Keller, on Ground Engineering Techniques for Infrastructure Projects and a case study in Geotechnical Engineering by Dr. B. R. S. Murthy, Geotechnical Consultant, Bengaluru. Around 210 participants from Highways Department, PWD, DRDA, Private and Public Limited Companies, Universities and Colleges from all over India, few Research Scholars from reputed Institutions and SRM-ICI students took part.

The Organising Committee was energetically bounded by Convener Dr. R.Annadurai, Head of the Department, Civil Engineering, Coordinators Dr. P. T. Ravichandran and Mr.P.R.Kannan Rajkumar and all other teaching and non-teaching staff members.

PHOTO GALLERY

SHARDA UNIVERSITY - NOIDA

1. Inauguration of ICI Students Chapter:

Indian Concrete Institute Students Chapter at Sharda University was inaugurated on 1st September 2013 at Sharda University by Er. Jose Kurian, Past President, ICI. The main objective of this students chapter is to organize Seminars, Technical Talks, Industrial Visits, Workshops and other student activities related to civil engineering. The students chapter so far has successfully organized 6 technical talks and seminars, 2 industrial visits and 4 different competitions.

2. Costrutto13:

Costrutto13 was the 2 days civil engineering fest organized by ICI students chapter of Sharda University with the support of Civil Engineering Department of SU and ICI Western UP Centre Ghaziabad. In this Fest, totally 2 competitions, 3 technical talks and 1 workshop were conducted. The competitions were Oral Presentation and AutoCAD Competition. The workshop was organized in collaboration with "Civil Simplified", an event designed by IIT-Kanpur Alumni.

2.1 Technical Talks:

In the Technical Talks, lectures were delivered by various industry persons.

a. Nimish Gupta, Managing Director of RICS, gave presentation on the topic, "Career Opportunities in Real Estate, Construction and Infrastructure". In his presentation, he described the Construction Economics and Management that student could work with.

Mr. Nimish Gupta

Ramanjeet Singh Walia

b. Ramanjeet Singh Walia, AGM of N.S Group Concrete Solution, spoke on various types of concretes like High Performance Concrete, Polished Concrete, Porous Concrete, Colored Concrete Blocks, Foam Concrete etc.

Alok Kumar Mishra & Abhyudaya Anchilia

c. Alok Kumar Mishra (Sr. Manager Marketing) and Abhyudaya Anchilia (Area Sales Manager) from Magicrete Building Solutions, spoke on the AAC blocks which is the substitute for bricks. They explained the manufacturing process and the use of such blocks in construction industry.

2.2. Oral Presentation:

The theme for this competition was "Substitute to Sand, Cement and Bricks". In this competition, there were totally 15 participants from different Universities who were short listed for final. The first prize was won by Mr. Shiva Gupta and his team from KIET College, Meerut and the second prize was won by Mr. Asheesh Mishra and his team from KIET College. The third prize was won by Mr. Ishant Sinha from Sharda University.

2.3. AutoCAD Competition:

In this competition, there were 35 participants from different Colleges from North India. The first prize was won by Mr. M. Raja Kathiravan of Sharda University and the second prize was won by Mr. Shubham Ganga of Gautam Buddha University whereas, the third prize was won by Mr. Kavin Prasthra of Sharda University.

2.4. Workshop:

Models

The workshop was conducted by Civil Simplified, a brainchild of IIT-Kanpur Alumni. It was about "Bridge Design, Testing and Fabrication". The workshop was for 8 hours and 30 Students participated in it. The participants learned about the basic design of the Bridge, its Fabrication and Testing. A competition was organized for the participants to design a bridge with the given materials. In this competition, Bismillah Arif, 4th year student of Sharda University won the Best Design Award whose bridge withstood the weight of 12.45 KG. The participant who won the regional level competition will participate in the All India Bridge Design Competition at IIT-BHU (Varanasi) at National level.

Winners

Sl.No.	M.No	Centre	Name	Place
A. Individual Life Members				
1	10249	Bengaluru	Nagaraj Sitaram. Dr	Bengaluru
2	10250		Ramesh P S. Er	Bengaluru
3	10251		Manjunatha L. Er	Bengaluru
4	10252		Kiran Kuldeep K N. Er	Bengaluru
5	10262	Bhopal	Hemant Shrivastava. Er	Gwalior
6	10246	Chennai	Manohar B. Er	Chennai
7	10247		Vigneshwaran B. Er	Anupuram (T.N)
8	10248		Rajesh T. Er	Chennai
9	10253		Dhanesh E. Er	Chennai
10	10255		Rahima Shabeen S. Er	Chennai
11	10258		Sadishkumar N. Er	Asaripallam (T.N)
12	10259		Ramana Gopal S. Dr	Chennai
13	10260		Vijayalakshmi R. Dr	Chennai
14	10261		Sangeetha P. Er	Chennai
15	10242	Chhattisgarh	Dharmendra Singh Sisodiya. Er	Raipur
16	10243	Hyderabad	Sravan Kumar R S. Er	Hyderabad
17	10263	Mumbai	Shrikant Tukaram Varpe. Er	Mumbai
18	10244	Nagpur	Vinay Shukla. Er	Nagpur
19	10245		Samadhan S. Aswale. Er	Panvel (Maharasthra)
20	10264		Atul Diwakar Jakate. Er	Amravati (Maharasthra)
21	10265		Ananda Dasharath Chavan. Er	Kolhapur (Maharasthra)
22	10240	Puducherry	Sivaradjou A. Er	Puducherry
23	10241		Vengatabaskarane B. Er	Puducherry
24	10256	Thiruvananthapuram	Krishnan Srikant. Er	Thiruvananthapuram
25	10257		Shashikala A.P. Er	Kozhikode
B. Organizational Life Members				
26	10254	Hyderabad	Gitam University, Hyderabad Campus	Hyderabad

fib CEB-FIP

East meets West, in India . . . . .

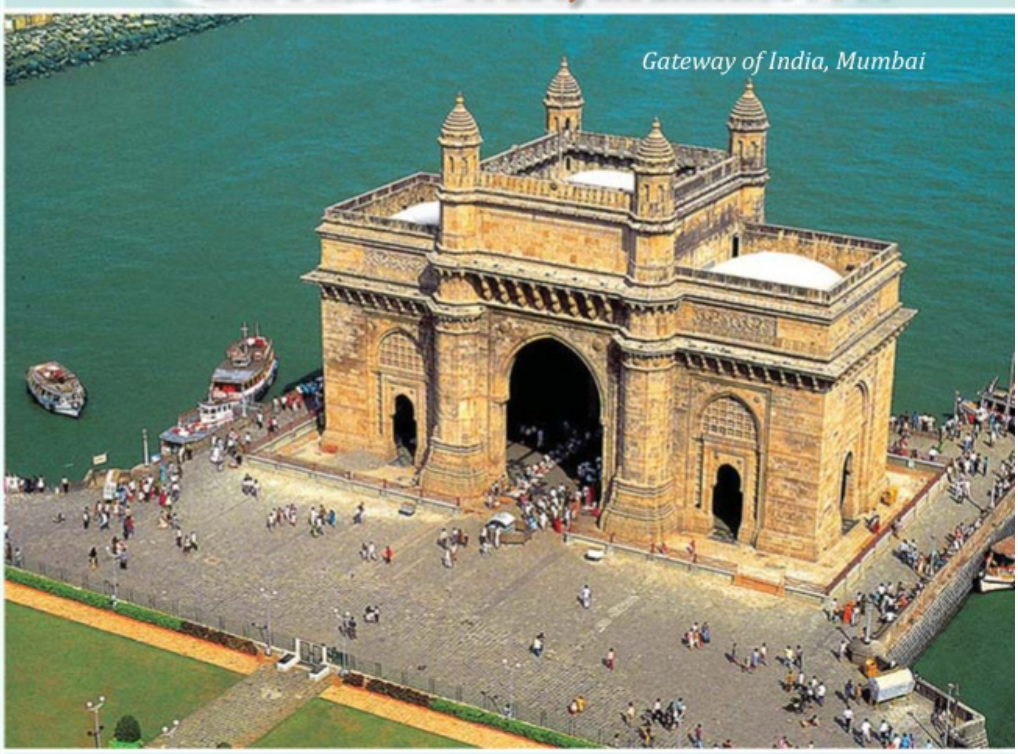
In Association with :

IRC

ACI (India) Chapter

ICI

IIBE



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