Seminar on High-Rise Buildings

by Prabodh Hamilton

On November 6, 2009, the GRT Grand held a seminar on high-rise buildings in Chennai. The two-day event, held under the auspices of the Construction Industry Development Council and organized through the personal efforts of V. Ganeshan and M.K. Sundaram, had drawn a number of eminent speakers. The large audience consisted of professionals associated with the building industry, as well as academicians.

The seminar started with a panel discussion moderated by Zacharia George, Consulting Structural Engineer. He began with an overview on the high-rise construction scenario in India. He highlighted the factors involved in high-rise construction and the various challenges like material limitations, infrastructure and the overall awareness faced by builders.

W. Anand's presentation highlighted various tall buildings of the world and how tall buildings play an important role in determining the skyline of a city. He spoke on various buildings of Chennai and made a point that planning parameters are often not given enough attention in detail. Anand spoke about the functional parameters involved in planning and how development rules play an important role in the development of a city.

Foundations was the next topic, and K.S. Rama Krishna of Larsen & Toubro (L&T) – EEC Division, Chennai gave the audience a detailed paper on tall structures across the globe and the deep foundations of those structures. He then highlighted the tall structures within the country. The presentation explained various foundation systems, excavations and types of equipment for special foun dations. Rama Krishna further touched upon quality measuring and monitoring systems, then told us about geotechnical instrumentation and monitoring. Groundwater control and dewatering systems were illustrated with case studies of piled raft foundations, along with failures of deep excavations. What was taken from this paper was that there is a need to adopt the latest technologies, equipment and monitoring systems, along with worker training for foundation exercises.


Sundaram


Ganeshan


Mathews

The next paper was by A.R. Santhakumar from Anna University, who spoke on superstructure design issues for tall buildings. The presentation explained shear-wall functionality in detail, along with failure modes of the cantilever shear wall. It also highlighted coupled shear wall behavior and effectiveness. The speaker covered principles of cantilever walls, the behavior of coupling beams and problems of construction joints, along with the principles for the design of coupled shear walls.

S.A. Reddi presented case studies on foundation and superstructures, including five case studies from around the world. The presentations were followed by an open discussion, wherein members of the audience posed questions that were answered by the panelists. This interactive session increased awareness among the delegates, and an array of varied questions were answered by the panelists.

Day two of the seminar had three speakers, who covered the topics of concreting, formwork and vertical transportation. John Keenen of Schwing Stetter gave a detailed presentation about concrete pumping and its applications and advantages. His presentation was illustrated with examples of how concrete was successfully pumped at high altitudes. This was an eye opener for many in the audience, including your author.

"Formwork for High-Rise Buildings" was presented by A.L. Sekar, general manager and head – Residential Business unit, L&T – ECC Division. His presentation detailed the various requirements of formwork and various types widely adopted for high-rise construction in India and overseas.

TAK Mathews of TAK Consulting spoke about vertical transportation and the approach to elevatoring high-rise buildings. He raised pertinent questions that are often ignored in elevatoring. He contended that developers and architects often approach the elevatoring requirements of a 60-story building with the view that the complexity of the elevator work is akin to three 20-story buildings put together. He elaborated his subject through case studies from real projects. The case studies highlighted that many basic factors are ignored during the design stage of buildings. He went on to introduce the fundamentals of traffic analysis and illustrated the definitions of round-trip time, handling capacity, average waiting time and interval. He took the audience through the detailing required to put together an effective vertical-transportation system and the complexities involved in elevatoring high-rise buildings. Through examples, Mathews also pointed out

how even cultural nuances could affect a residential or commercial building.

The next paper was by S.N. Narayanan of Consolidated Construction Consortium Ltd. in Chennai, who spoke about safety in high-rise buildings. His presentation highlighted the need for safety measures in construction sites. Narayanan outlined the risks as fall of a person, fall of materials/objects, collapse of structure/scaffolds/cranes, electrical accidents, fire and others. The presentation was illustrated with lots of actual site accidents and the preventive measures that need to be undertaken.

The floor was then taken by M. Namasivayam, assistant divisional officer, Tamil Nadu Fire and Rescue Services, Chennai. He held the audience captive by asking pertinent questions about the reaction to a fire in the very room of the presentation. The audience's answers didn't really impress him in terms of safety and preventive action. He elaborated with examples as to how we should all be more aware about the fire escape routes in any area that we occupy. He then outlined the various hazards in a building, such as fire, smoke, fumes/poisonous gases, collapse, natural disasters, threats and hostile environments. Namasivayam pointed out that as height increases, evacuation time, response time and fatigue increase.

The final presentation of the day was by a team from Design Tree Service Consultants, which talked about the challenges faced in the design of mechanical, electrical and plumbing services. The presentation covered population health and environment works – water supply; fire protection systems; heating, ventilation and air-conditioning systems; and electrical systems. The four-member team from Design Tree Services presented all of the above in extensive detail.

With development trends in India moving toward high rises, the two-day seminar couldn't have come at a better time.

Prabodh Hamilton, Business Development director at TAK Consulting, has over 17 years of work experience in client servicing, business development, event management, licensing and merchandising.