

## Earthquake-resistant practices in architecture\*

A workshop was held recently as part of the initiative by the National Information Centre of Earthquake Engineering towards reaching the architects of tomorrow through a hands-on programme in earthquake-resistant architectural design. The workshop was attended by 57 participants from 19 colleges all over India (and Nepal), selected from over 100 applications which were received. The aim of the workshop was to sensitize the students of architecture in earthquake-resistant design practices through technical lectures followed by design studios, where they were given guidance in earthquake-resistant design by working on an architectural design project.

The selected participants were each sent a NICEE publication titled *Earthquake Design Concepts*, authored by Murty and Charleson. They were advised to go through the book before coming for the workshop. On the first day of the workshop, a quiz with multiple choice answers was conducted. Another quiz was conducted towards the end of the workshop to evaluate the progress made by the students.

During the six-day workshop the students were given an architectural design

assignment, where they were required to design an apartment complex containing a mix of different types of apartments, in addition to amenities and utilities for residents. The brief was to incorporate earthquake-resistant features at the conceptual design stage along with the usual design considerations such as activities, climate, image, etc. Students were exposed to RESIST software to test the adequacy of their designs from a seismic performance perspective and this session helped them arrive at reasonable sizes of structural members. The design assignment helped the students internalize earthquake safety issues and apply these in their design solutions.

The following faculty members were the resource persons for the workshop: Keya Mitra, Department of Architecture, Bengal Engineering and Science College, Shibpur; Mahua Mukherjee, Department of Architecture and Planning, IIT Roorkee; Vasudha Gokhale, Dr B.N. College of Architecture for Women, Pune; Bhavna Vimawala and Nehal Desai, Department of Architecture, SCET, Surat.

In addition to the above faculty, lectures were also delivered by Sudhir K. Jain and Durgesh C. Rai (IIT Kanpur), who also participated in the design studios and guided the students on how best to incorporate earthquake-resistant features in their individual designs, keeping in mind all the other requirements of the design brief. The studio sessions were a mix of desk work and informal lectures, where individual cases were used to il-

lustrate earthquake engineering concepts to the entire class.

The final designs were evaluated by a Jury Board on the last day through presentations followed by a brief questioning by the Jury. The Jury consisted of Ar. Tapan Kumar Sinha (CPWD, New Delhi); Amit Bose (Designers and Planners Combine, New Delhi); O. R. Jaiswal (VNIT, Nagpur); Sudhir K. Jain and Durgesh Rai. After the initial scrutiny, the best eight designs were shortlisted, which were again reviewed by the Jury before three winners were announced.

The students' feedback at the end of workshop was very good. The overall rating assigned by the students to the workshop was 83% (average). The response had an average score of 4.71 (out of 5.0) to the question if they will recommend this workshop to their colleagues.

During the valedictory session, Sudhir Jain advised the participants to draw a balance between the requirements of earthquake-resistant design and a host of design considerations that they normally consider in their architectural design exercises. The chief guest, Ar. Tapan Kumar Sinha lauded the quality of the design output by all participants.

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\*A report on the workshop on 'Earthquake-Resistant Practices for Undergraduate Students of Architecture' held during 3-8 July 2008. The workshop was organized by the National Information Centre of Earthquake Engineering, Indian Institute of Technology Kanpur, Kanpur.