

Seismic code obsolete, must be revised for earthquake-resistant structures: Study

HYDERABAD: With the height of buildings being constructed in Indian cities rapidly increasing, there is a need for revision of the 14-year-old Indian Seismic(IS) code, 2002 for ensuring that these tall buildings are earthquake resistant. This has been pointed out by the Earthquake Engineering Research Centre(EERC) of International Institute of Information Technology (IIIT), Hyderabad. Another reason why the Indian Seismic code needs to be revised is because many tall buildings, having more than 20 floors and heights ranging from 60 meters - 150 meters and above, are using Shear Wall(SW) in the building construction, which was not prevalent in 2002 when the IS code was published.

As a result, constructions using shear walls, fall in 'others' category of the IS code for calculation of 'fundamental period' of a building, which is crucial in designing of an earthquake resistant structure.

As many buildings above 20 meters in height are coming up and usage of shear wall is on the rise, formula for calculating Fundamental Period (FP) as laid out by IS, 2002 is becoming obsolete for such buildings.

Buildings in Hyderabad and Mumbai Prof Pradeep Kumar Ramancharla, head of EERC at IIIT-Hyderabad and a PhD scholar, PD Velani, conducted studies on 21 Reinforced Concrete(RC) buildings measuring 60 meters to 150 meters in Hyderabad and Mumbai. Of these, 14 buildings with shear walls.

Prof Ramancharla learned that the FP of these 21 buildings using electronic equipment known as high precision building vibration sensor. The FP obtained using vibration sensor for the 21 buildings was compared with the FP obtained from theoretical formula prescribed by IS, 2002 and a large difference was seen between the two values.

New formula designed by IIIT Ramancharla worked out two new formulae for calculating the FP of a building depending on whether the building is a RC building having a Shear Wall or a normal RC building taller than 20 meters. The FP value derived from these formulas were found to be in sync with the FP values derived from the electronic equipment. Prof Ramancharla said that he has communicated the two new formulas to the Bureau of Indian Standards.