

REPORT ON SEISMIC DESIGNS

The things that were shared with us in the seminar started with what are Architects.

They create a safe and secure place for living, create memorable structures etc. earthquakes are a sudden and rapid shaking of earth, which is caused by the potential energy stored in the rocks.

The structures which are made with an earthquake design have some problems like they are large, they are unique, also they are very expensive. And in the profession of architecture and civil engineering face problems like limitations of time to design and shortage of funds. If there is an earthquake there is damage that has taken place. Whereas, in minor shaking there is hardly any damage taken place, and in moderate shaking some non-structural members are damaged, whereas in heavy shaking structural members are damaged. Talking about the fundamental natural period for different height of structures like for a single stored building T is 0.05 sec, for low rise buildings T is 0.4 sec, and high-rise buildings the T is 1 sec.

Non residential structures like elevated water tank and RCC chimney has 4 and 2 seconds respectively. Comparing the building during shaking of earth to a reversed pendulum.

Giving strength to the structures is by using shear walls which helps to reduce the damage and maintains stiffness. The box action shows that if the foundations is firm enough to handle the shaking of earth there very low damage to the super structure. The bonding between the foundation and the walls and columns also helps in maintaining the strength.

In India, RCC construction is used the most. So here the components of frame structures like beam and columns play a major role in keeping the structures steady. The beams if are made wider than columns then the load on the columns keep increasing. And having the columns wider than beams also helps in reduction of beam extra weight and the beam also works efficiently in load transferring.

The no. of casualties and the repair cost was the highest at Los Angeles with a magnitude of 7.0 scales. And then followed by the earthquake at San Francisco in 1960 and then the Kanto earthquake which had the most casualties.

There were also economic losses like direct and indirect impacts, where the prices went more than 80% due to shortage of materials and equipment.

The functional losses were due to the component failure and system failure, and disruption created by repairs of architectural and other non-structural components.