

MANAGING EARTHQUAKE DISASTERS THROUGH ARCHITECTURE AND PLANNING

SESSION 3

Roles of multidisciplinary players and stakeholders

Effect of an Earthquake on a building can be simplified with an understanding of an Inverted reverse pendulum. The foundation in the soil or the substructure being the fixed support and the superstructure behaving as an oscillating pendulum. In this case, the height of the structure becomes the deciding factor of how much would be the time taken to complete one oscillation. Shorter buildings would have less time of oscillation than compared to the high-rise structures. The time can vary from 0.05 seconds to 6 seconds depending upon the type of structure.

Some of the architectural strategies that can be applied for minimizing the damages caused by earthquakes are

- Planning the structural framing in grid form.
- Distributing the mass of the building symmetrical, and avoiding unequal distribution of mass.
- In case of a sloped terrain, Levelling the land and giving equal lengths of columns, instead of giving unequal lengths of columns according to the slope.

- Giving appropriate lintel bands, plinth band and binding to the RCC columns in form of tie bars can help to save the structure during an earthquake.
- If a soft storey is given on the ground floor, giving additional structural members or external braces is recommended.