**A Case Study on Inelastic Seismic Analysis of Six Storey RC Building**

**Abstract:**

The aim of master thesis is to determine the non-linear response of reinforced concrete frame using SAP2000 that has been carried out with the intention to investigate the relative importance of several factors in the non-linear analysis of RCC frames. This includes the variation in load displacement graph. In order to find out the various structural performance levels of the building, a symmetrical model of G+5 storey building with SAP 2000 has been developed. Along with such model a seismic evaluation followed by information about various strengthening techniques for beam and column are also examined. The study includes the pushover analysis of G+5 storey building using SAP 2000. For structural design and assessment of reinforced concrete members, the non-linear analysis has become an important tool. The method can be used to study the behaviour of reinforced concrete structures including force redistribution. This analysis of the nonlinear response of RC structures has to be carried out in a routine way. It helps in the investigation of the behavior of the structure under different loading conditions such as load deflection behavior and the crack pattern. In case of the reinforced cement concrete frames the parameters that determine the response are the stiffness and ductility of the structure and the constituent material, the geometry of the structure and nature of the force imposed on to the structure. The major parametric study in a push over analysis is that the force is applied in increments and the response for each step is found out and plotted out on graph depicting the capacity curve. Similarly the demand curve that has been provided by the respective codes is overlapped with the capacity curve obtained from the push over analysis. The point of intersection of the capacity curve and the demand curve becomes the performance point of the structure. Such is the work carried out in this thesis.