Abstract

In the concept of conventional earthquake-resistant design of structures enable the occurrence of inelastic deformation on the main structural members that prevent the collapse of the structure so as to provide acceptable life safety for the resident of building but financial and economic losses due to damage of the building that can not be repaired to be very large.

The new seismic resistant design and is currently being developed that is Self Centering System with a gap opening behavior that dissipate energy without inelastic deformation and suffer damage on the main structural member. The elastic restoring force is given by post-tensioned steel strand that return the structure to its original position as before earthquake.

But the the column bases at ground level in Self Centering steel Moment Resisting Frames (SC-MRFs) may suffer damage by plastic hinges. Formation of plastic hinges at column bases may hinder the self centering behaviour of
the Self centering. In order to eliminate damage at column bases and enhance self centering capability of the SC MRF, a post-tensioned column base connection is proposed.

From the analysis it is found that the structure is still in a state of **immediate occupancy** where no main structural members damage of the beams and columns.

*Keywords : Self Centering, Post-tensioned column, steel moment resisting frames,*