Procedure to predict the storey where plastic drift dominates in two-storey building under strong ground motion

A procedure is presented to predict the storey where plastic drift dominates in two-storey buildings under strong ground motion. The procedure utilizes the yield strength and the mass of each storey as well as the peak ground acceleration. The procedure is based on two different assumptions: (1) the seismic force distribution is of inverted triangular form and (2) the rigid-plastic model represents the system. The first and the second assumptions, respectively, lead to lower and upper estimates of the base shear coefficient under which the drift of the first storey exceeds that of the second storey. The efficiency of the procedure is verified by dynamic response analyses using elasto-plastic model.