

Characteristics Influencing Response of a Base Isolated Building

Authors : Ounis Hadj Mohamed, Ounis Abdelhafid

Abstract : In order to illustrate the effect of damping on the response of a base-isolated building, a parametric study is led, taking into account the progressive variation of the damping ratio (10% to 30%) under different types of seismic excitations (near and far field). A time history analysis is used to determine the response of the structure in terms of relative displacement and understory drift at various levels of the building. Thus, the results show that the efficiency of the isolator increases with the assumed damping ratio, provided that this latter is less or equal to 20%. Beyond this value, the isolator becomes less convenient. Furthermore, a strong deviation of energy capacity by the LRB (Lead Rubber Bearing) system is recorded.

Keywords : damping, base isolation, LRB, seismic excitation, hysteresis

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