

## عنوان مقاله:

Assessment of ductility demand of base-isolated bridges located in Iran

## محل انتشار:

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## نویسندگان:

Amir Halabiyani - West Tehran Branch, Islamic Azad University, Tehran, Iran. Department of Civil Engineering

Behnam Mehrparvar - West Tehran Branch, Islamic Azad University, Tehran, Iran. Department of Civil Engineering

## خلاصه مقاله:

Conventional method for earthquake resistant design of bridges is to increase the strength and energy dissipation capacity of their components. This design philosophy prevents collapse of the bridge at the expense of accepting significant damage in its elements. Using seismic isolators is a fairly novel and modern design technique in this field. These bearings are used in earthquake prone regions for optimum design of new bridges and rehabilitation of existing bridges against earthquakes. In this project, these two design methods have been studied on one of the main highway bridges of Tehran. That is, the bridge has been studied once in isolated form (using LRB isolators) and then as non-isolated. The evaluation of these two plans has been performed using the results of non-linear dynamic time-history analyses obtained from direct integration by SAP 2000 software under five pairs of historic earthquake ground motions occurred in Iran. The results of the analyses, including the ductility demands, on isolated and non-isolated bridge models have been evaluated. The results demonstrated failure of the non-isolated model under the event of two pairs of the applied records, while in the isolated structure just formation of plastic hinges in some pillars was observed. Hence, bridge collapse during the incident of these severe earthquakes will be prevented by application of seismic isolators. Also both isolated and not-isolated bridges, did not fail and remained stable under the three other earthquake records. Furthermore, the isolated bridge, showed less ductility demands and more drifts compared to the non-isolated one

## کلمات کلیدی:

bridges, earthquake resistant design, seismic isolation, time-history analysis

## لینک ثابت مقاله در پایگاه سیویلیکا:

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