عنوان مقاله:

Effects of Near Fault and Far Fault Ground Motions on Nonlinear Dynamic Response and Seismic Improvement of Bridges

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خلاصه مقاله:

In this study, the dynamic response of bridges to earthquakes near and far from the fault has been investigated. With respect to available data and showing the effects of key factors and variables, we have examined the bridge's performance. Modeling a two-span concrete bridge in CSI Bridge software and ability of this bridge under strong ground motion to near and far from fault has been investigated. Nonlinear dynamic analysis of time history includes seven records of past earthquakes on models and it was observed that the amount of displacement in the near faults is much greater than the distances far from faults. Bridges designed by seismic separators provide an acceptable response to a far from fault. This means that in bridges using seismic separators, compared to bridges without seismic separators, Acceleration rate on deck, base shearing and the relative displacement of the deck are decrease. This issue is not seen in the response of the bridges to the near faults. By investigating earthquakes near faults, it was observed that near-fault earthquakes exhibit more displacements than faults that are far from faults. These conditions can make seismic separators critical, so to prevent this conditions FDGM should be used to correct the response of these bridges. Based on these results, it can be said that the displacement near faults with forward directivity ground motion is greater than far from faults. So that by reducing the distance from the faults, the maximum value of the .shearing and displacement of the deck will be greater

کلمات کلیدی:

Nonlinear Dynamic Response of Bridge; Seismic Improvement of Bridges; the Near and Far Fault; Forward Directivity Ground Motions