

Acting Force and Strength of Bearings on Steel Railway Bridges with Skew Angles during Earthquake

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Most seismic damages of steel railway bridges tend to occur at their bearings, particularly in case of skewed bridges. However, there are not enough studies about the characteristic of bearings of skew bridges regarding the acting force of the bridge and strength of bearings during earthquake. In this paper, we have conducted static and dynamic analyses of the real structures with different structural types, skew angles and span lengths in order to clarify the acting force on the bearings. As a result, it was found out that the acting force was concentrated on the bearing at the obtuse corner because of the supplemental acting force caused by the difference of deflection between the two main girders. Moreover, we have conducted the monotonic loading test of the bearings in various directions. Consequently, it was found out that the strength of bearings was not so affected by the directions of acting force and could be evaluated by the shear capacity.