

Estimation of seismic interactive response between adjacent bridges of highway viaducts

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In recent years, the earthquake resistance capacity of highway viaducts is improving with the progress of the seismic design procedures. However, the interactive response of adjacent bridges has not been taking into account. The seismic design procedure specifies that a bridge structure should be designed by every oscillating unit without considering the effect of interaction between adjacent bridges. If the displacement response becomes large at a connection part, the collision between beams will occur: and if things come to the worst, the beam will fall of.

This paper discussed the response and the effect of the interaction between the adjacent bridges. First, the relative velocity was used in order to evaluate quantitatively the influence of a collision. Then, the rational design method for seismic unseating prevention cables for the bridges was proposed. Finally, the new structural design procedure considering the interaction between adjacent bridges was proposed.