



SEISMIC ANALYSIS AND DESIGN OF POLWATHUMODARA HIGHWAY BRIDGE IN SOUTHERN TRANSPORT DEVELOPMENT PROJECT

By
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Abstract

The natural phenomena 'earthquakes' can not be prevented but the damage caused by earthquakes can be minimised mainly by having structures to resist earthquakes. The seismic performance of bridge is important as bridges play a key role in the transportation system. Hence this research is focused on the vulnerability of a bridge based on a major highway bridge namely Polwathumodara bridge to withstand an earthquake.

Selection of a suitable code of practice to be used, selection of appropriate earthquake loading is discussed in the report as earthquake data is not available in Sri Lanka. Then both the dynamic analysis (response spectrum analysis and time history analysis) and the static analysis are performed on the three dimensional model of the bridge using SAP 2000 to evaluate the design load effects. Based on the maximum design load effects a design capacity check is performed on all superstructure and substructure elements.

DECLARATION

I, S. Withanage, hereby declare that the content of this thesis is the original work carried out by me. Whenever others' work is included in this thesis, it is appropriately acknowledged as a reference.

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