

SEISMIC RESPONSE CONTROL OF A CANTILEVERED HIGHWAY SIGN SUPPORT, USING A TMD

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ABSTRACT

This work contributes to a better understanding of the seismic response of cantilevered sign support structures, used in highways. For such, the present paper presents a comparative study of the seismic response of a cantilever sign support, when subjected to earthquakes with and without a tuned mass damper (TMD). The paper starts with a brief summary of different methodologies, to assess seismic input on structures. Some guidelines on the considered procedure, for the selection of appropriate suites of accelerograms, complying with Eurocode 8 prescription for Portugal (Faro) are presented. To mitigate earthquakes dynamic effects, the sign support structure can be equipped with a TMD, with proven efficiency, ease of application and modelling, for the out-of-plane vibration control of the sign support, in terms of displacements and accelerations reductions, when the structure is subjected to series of real accelerograms compatible with the earthquake scenario of Eurocode 8-1.

KEYWORDS: Seismic Response, Eurocode 8-1, Cantilevered Sign Support Structure, TMD