Expected Present Value of Losses in the Computation of Optimum Seismic Design Parameters

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Abstract : An approach to compute optimum seismic design parameters is presented. It is based on the optimization of the expected present value of the total cost, which includes the initial cost of structures as well as the cost due to earthquakes. Different types of seismicity models are considered, including one for characteristic earthquakes. Uncertainties are included in some variables to observe the influence on optimum values. Optimum seismic design coefficients are computed for three different structural types representing high, medium and low rise buildings, located near and far from the seismic sources. Ordinary and important structures are considered in the analysis. The results of optimum values show an important influence of seismicity models as well as of uncertainties on the variables.
Keywords : importance factors, optimum parameters, seismic losses, seismic risk, total cost
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