

Selection of Rayleigh Damping Coefficients for Seismic Response Analysis of Soil Layers

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Abstract : One good analysis method in seismic response analysis is direct time integration, which widely adopts Rayleigh damping. An approach is presented for selection of Rayleigh damping coefficients to be used in seismic analyses to produce a response that is consistent with Modal damping response. In the presented approach, the expression of the error of peak response, acquired through complete quadratic combination method, and Rayleigh damping coefficients was set up and then the coefficients were produced by minimizing the error. Two finite element modes of soil layers, excited by 28 seismic waves, were used to demonstrate the feasibility and validity.

Keywords : Rayleigh damping, modal damping, damping coefficients, seismic response analysis

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