

Dynamic Active Earth Pressure on Flexible Cantilever Retaining Wall

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Abstract : Evaluation of dynamic earth pressure on retaining wall is a topic of primary importance. In present paper, dynamic active earth pressure and displacement of flexible cantilever retaining wall has been evaluated analytically using 2-DOF mass-spring-dashpot model by incorporating both wall and backfill properties. The effect of wall flexibility on dynamic active earth pressure and wall displacement are studied and presented in graphical form. The obtained results are then compared with the various conventional methods, experimental analysis and also with PLAXIS analysis. It is observed that the dynamic active earth pressure decreases with increase in the wall flexibility while wall displacement increases linearly with flexibility of the wall. The results obtained by proposed 2-DOF analytical model are found to be more realistic and economical.

Keywords : earth pressure, earthquake, 2-DOF model, Plaxis, retaining walls, wall movement

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