

## **Numerical modelling of seismic behaviour of non-gravity cantilever earth-retaining walls**

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### ***Abstract***

In current engineering practice the design methods for earth retaining walls under seismic conditions are mostly empirical. Dynamic earth pressures are calculated assuming prescribed seismic coefficient acting in the horizontal and vertical directions using the concept of Mononobe-Okabe method. A research investigation has been undertaken to determine the dynamically-induced lateral earth pressures on the stem portion of a concrete, flexible cantilever retaining wall with cohesionless backfill. A series of finite element numerical analyses have been performed using DIANA. Particular attention has been devoted to ground excitation, modeling of the wall-soil interface and soil constitutive modeling. The results obtained with DIANA have been compared through a series of benchmark tests with those determined using simplified techniques for computing dynamic earth pressure, co-seismic and post-seismic wall displacements.

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