

DEFORMATION METHOD IN EARTHQUAKE ENGINEERING

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ABSTRACT

During strong-motion earthquakes structures behave non-elastically, with permanent deformations in the form of cracks, plastic elongations and shears. The proportionality between the forces and the deformations is disturbed; the forces depend on the elastic limit rather than on the earthquake intensity; calculations for static forces are conventional and inadequate.

The major value accessible for measurement and calculation is the maximum elastic deformation. In non-elastic behaviour the maximum deformation changes less than the force.

By applying methods of mathematical statistics and reasonable safety factors it is possible to determine the expected deformations of structures.

The task facing the designer is to provide for the development of elastic-plastic deformations without damaging the major structures.

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