

6 Linear Elasticity

The simplest constitutive law for solid materials is the linear elastic law, which assumes a linear relationship between stress and engineering strain. This assumption turns out to be an excellent predictor of the response of components which undergo small deformations, for example steel and concrete structures under large loads, and also works well for practically any material at a sufficiently small load.

The linear elastic model is discussed in this chapter and some elementary problems involving elastic materials are solved. Anisotropic elasticity is discussed in Section 6.3.

