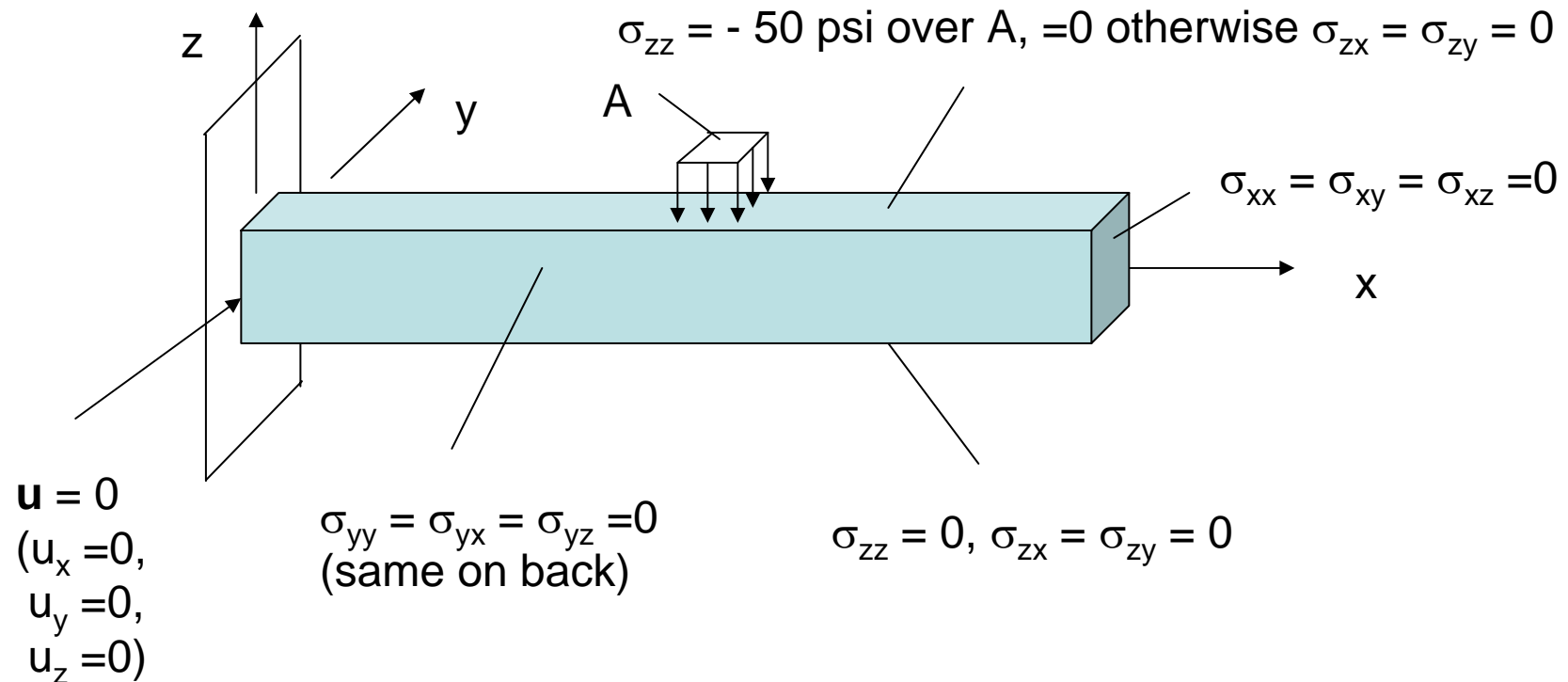


## Boundary Conditions

To determine stresses and displacements, it is not sufficient to satisfy the equilibrium and compatibility equations together with the stress-strain relations. We also need to specify the stresses or displacements acting on the body from external sources. These are the boundary conditions.



## Saint-Venant's Principle

Statically equivalent systems of surface traction applied to a given small portion of the surface enclosing an elastic body are elastically equivalent (i.e. they produce the same stress and strain distributions) except in the immediate neighborhood of the region where these surface tractions are applied.

Statically equivalent:

$$\sum F_I = \sum F_{II}$$
$$\sum M_I = \sum M_{II}$$

