Concept 5 Glossary

THAYER SCHOOL OF ENGINEERING AT DARTMOUTH

beam:
a structural element that resists loads applied perpendicular to the axis of the member

bending:
the curved form taken by a slender element when subjected to loads perpendicular to the element

bending stress:
stresses caused by bending

compression:
“pushing” force on a member that causes it to shorten or buckle

cross section:
the shape of a structural element perpendicular to the main axis of the member

fixed support:
a support that provides translational resistance in two orthogonal directions as well as rotational resistance; often represented by a series of diagonal lines.

moment (bending moment):
the tendency of a force to cause an object to rotate or bend

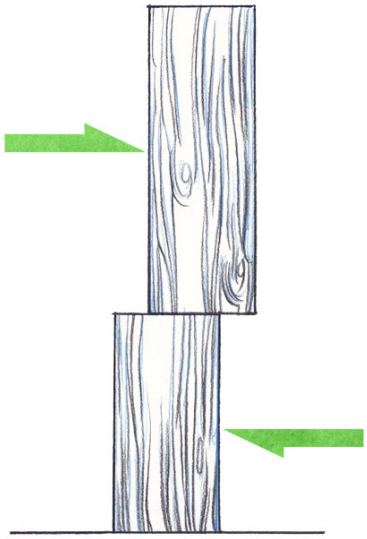
moment of inertia:
resistance to bending

neutral axis:
axis of zero stress

pinned support:
a support that provides translational resistance in two orthogonal directions; often represented by a triangle

roller support:
a support the provides translational resistance in one direction only; often represented by a circle

shear:
a set of parallel, non-collinear forces acting across an element



statically indeterminate:
a beam that has more than just enough supports and equilibrium equations are insufficient for determining the internal forces and reactions

stress:
quantity of internal forces that neighboring particles of a continuous material exert on each other

support/restraint:
a connection, often at the base of a structure, that keeps a structure from moving or rotating

tension:
a “pulling" force on a member that causes it to elongate