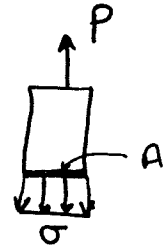


Normal Stress ( $\sigma$ )  $\Leftarrow$  sigma

Normal forces produce normal stresses, which are tension or compression, that are uniform over the area of the cutting plane, if the forces act at the centroid of the area; thus

$$\sigma_{ave} = \frac{N}{A}$$

$$= \frac{P}{A}$$



important!  
 $\Downarrow$

$N = P =$  normal force  
 $A =$  area

$\Leftarrow$  internal

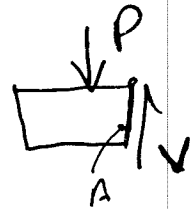
Shearing Stress ( $\gamma$ )  $\Leftarrow$  Tau

The force which is parallel to the area of the cutting plane is called a shearing force; it produces shearing stress with complicated distribution, but can be approximated

as:

$$\tau_{ave} = \frac{V}{A}$$

$V =$  shearing force  
 $A =$  area



Bearing Stress ( $\sigma_b$ )

The normal stress which occurs as a result of two distinct structural elements bearing or pressing one another is called bearing stress;

$$\sigma_b = \frac{P}{A_c}$$

$\Leftarrow$   $A_c =$  area of contact

