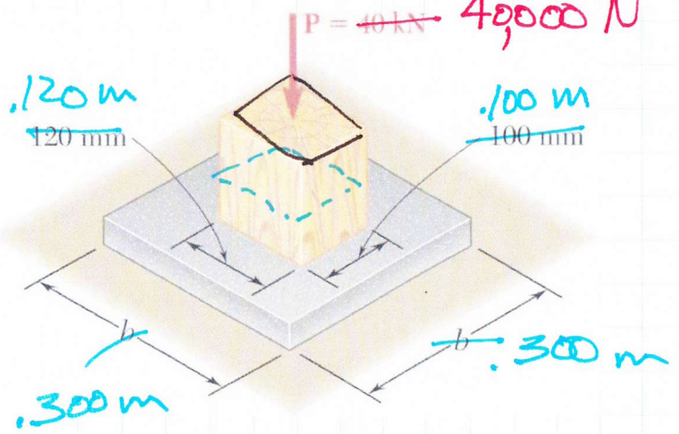
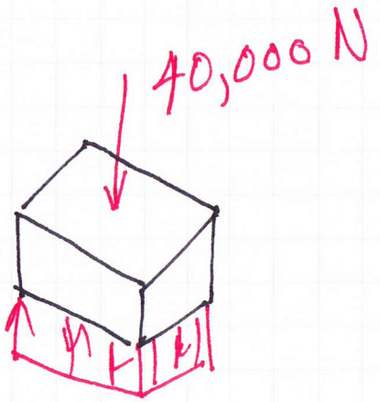
Uniform Bearing Stress





$$\sigma_{AVG} = \frac{40000\ N}{(.120\ m)(.120\ m)}$$

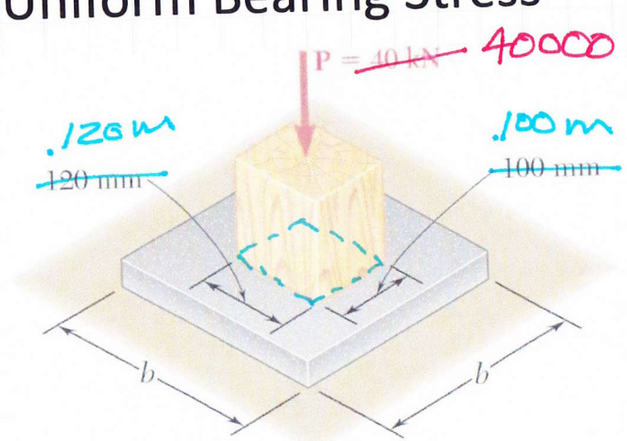
$$\sigma_{AVG\ wood} = 3.333 \times 10^{6}\ \frac{N}{m^2}$$

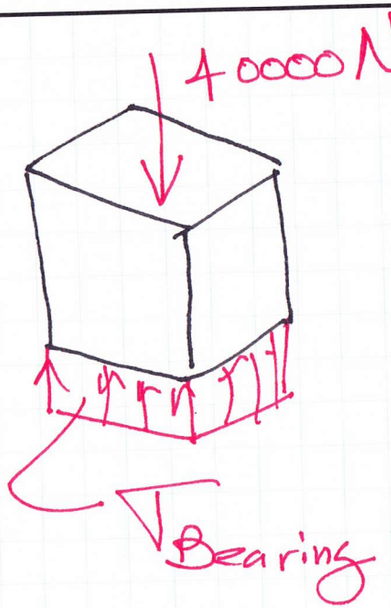
or

3.333 MPa

compression

Uniform Bearing Stress





$$\sigma_{AVG\ Wood/Concrete} = \frac{40000}{(.120)(.100)}$$

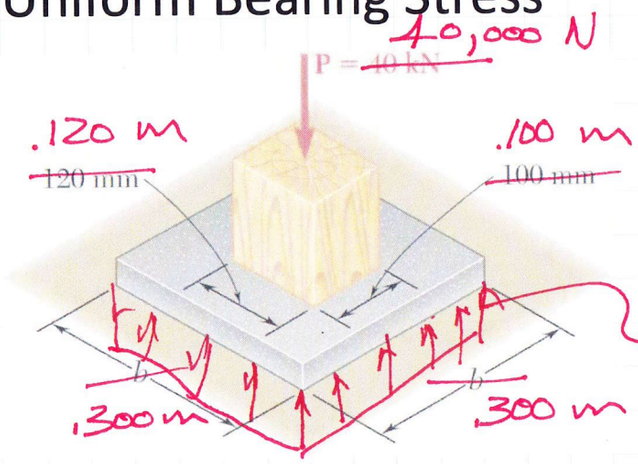
$$\sigma_{AVG\ wood/concrete} = 3.333 \times 10^{6}\ \frac{N}{m^2}$$

or

$$3.333\ MPa$$

Compression

Uniform Bearing Stress



40,000 N

.120 m

.100 m

$$\sigma_{concrete/soil} = \frac{40{,}000\ N}{(.300)(.300)}$$

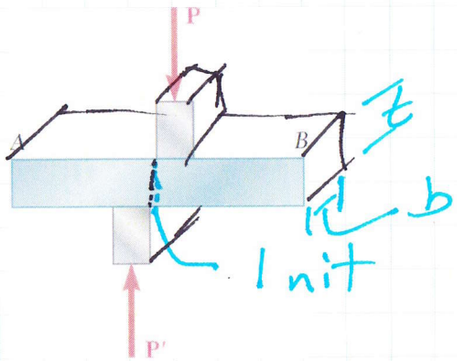
$$\sigma_{concrete/soil} = 444.4 \times 10^3\ \frac{N}{m^2}$$

or

$$444.4\ kPa$$

Compression

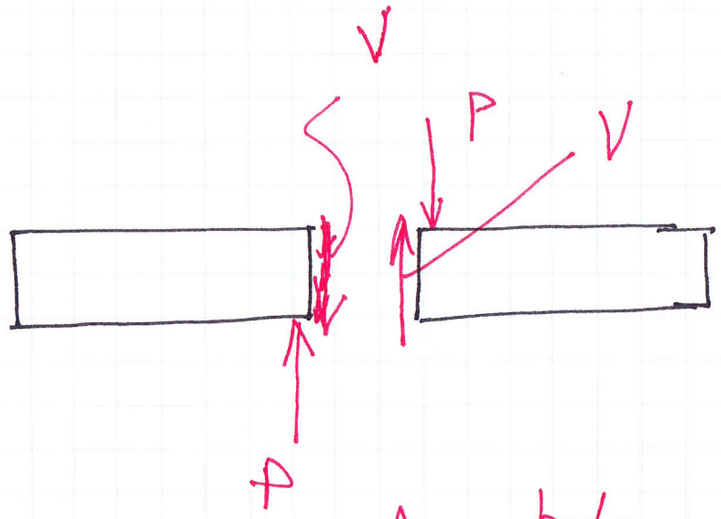
Uniform Shearing Stress

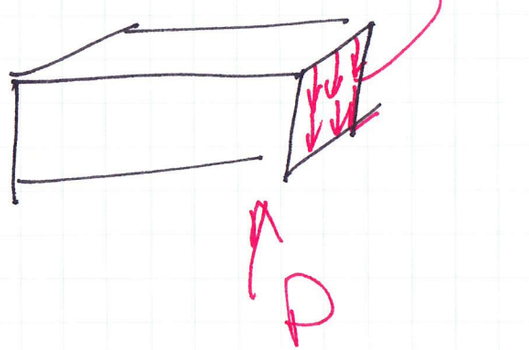


t

b

Init





$A = bt$

$$\tau_{AVG} = \frac{V}{A} = \frac{V}{bt}$$