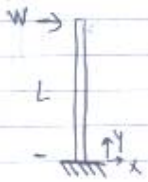
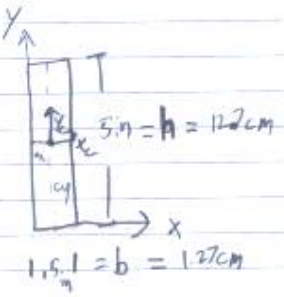
BEAM Deflection

$W = 50 lbf = 222.41 N$ $E = 2400 - 3300 MPa$

$L = 5ft = 60in = 1.524 m$



$\delta = \frac{WL^3}{3EI}$ $I_x = \frac{bh^3}{12}$



Note Use 2400 MPa as worst case scenario
Use 50Lbs as an overly exaggerated force
Using single side as worst case scenario.

$$\frac{I}{x} = \frac{(.127m)^3(.0127m)}{12} = 2.167872E^{-6}\ m^4$$

$$\delta = \frac{(222.41N)(1.524m)}{(3)(2400\cdot10^6)(2.167872E^{-6}\ m^4)} = .018m = \boxed{1.8cm}$$

With double tipping force ~ 5lbf

$10lbf \approx 44.5N$

$$\delta = \frac{(44.5N)(1.524m)}{(3)(2400\cdot10^6 Pa)(2.167872E^{-6}\ m^4)} = .00359m = \boxed{.359cm}$$

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SIGNATURE

DATE 11/06

DISCLOSED TO AND UNDERSTOOD BY

DATE

PROPRIETARY INFORMATION