

Flexural Strain

Description

This project produces a graphic representation of the strain diagram for a tension controlled concrete beam.

Goals

- To plot the compression and tension strain levels in a concrete beam
- To graphically determine the neutral axis.
- To draw the ACI "Whitney" stress block showing C and T forces.
- To compare plotted and calculated results.

Procedure

- For the tension controlled beam analysis discussed in lecture, construct the strain diagram with $\epsilon_{cu} = 0.003$ and ϵ_t as calculated.
- Use $f'_c = 6000$ psi and $f_y = 60000$ psi
- Graphically determine the c distance from the top to the N.A. on your diagram.
- Make a second diagram to show the relationship of C & T forces to the strains.
- Draw the ACI – Whitney stress block at " a " distance from the top.
- Show the moment arm and calculate j using $jd = z$.

Due

Sunday, March 28

