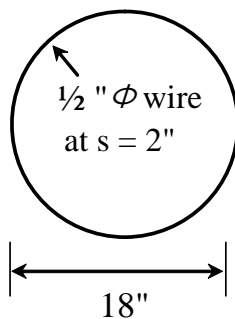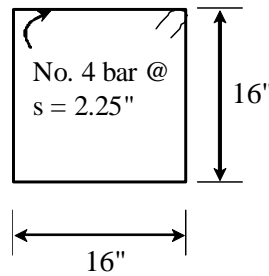# Assignment #4

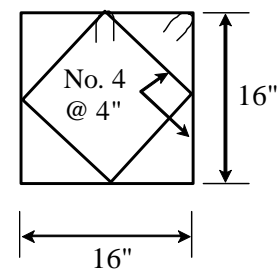Due Date : 04.18 (Tue) *Behavior of Concrete Members*

The Figure below shows five confined concrete cores. The cores may be assumed to be those occurring in full-scale construction. For each $f'_c = 4000 \, psi$ and steel has actual yield stress of 60,000 psi. For each section, compute the total transverse steel ratio, estimate the average compressive strength f_{cmax} that could be assumed to act over the entire core cross section, and estimate the axial compressive strain at fracture of the transverse reinforcement. Plot stress-strain relations for plain concrete and for each of the sections on a single graph. Beneath the plot, tabulate the transverse steel ratio, f_{cmax}, and ϵ_{cmax}.
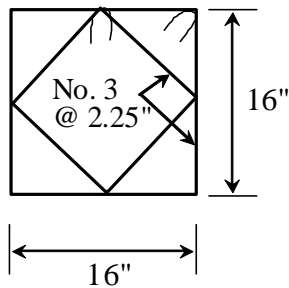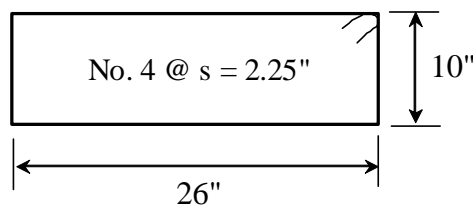

½ " Φ wire at s = 2"

18"

(a)

No. 4 bar @ s = 2.25"

16"

16"

(b)

No. 4 @ 4"

16"

16"

(c)

No. 3 @ 2.25"

16"

16"

(d)

No. 4 @ s = 2.25"

10"

26"

(e)