

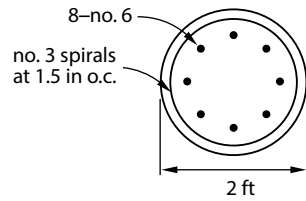
PROBLEM 13

Reinforcement is needed for the column end zone in seismic zone 2. Use the following assumptions.

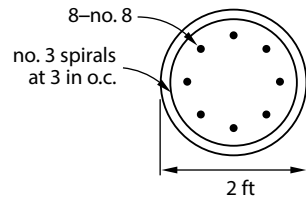
- $f'_c = 4$ ksi
- $f_y = 60$ ksi
- cover = 2 in

Which figure shows the correct reinforcement detailing for the column end zone in seismic zone 2?

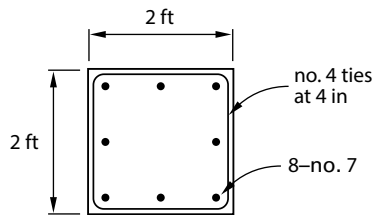
(A)



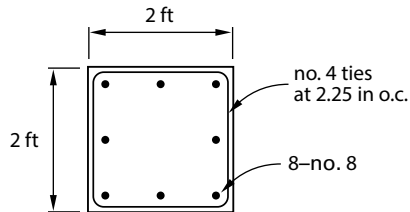
(B)



(C)



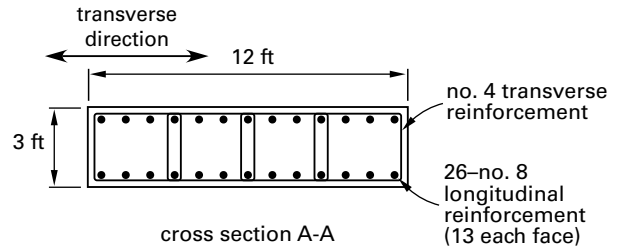
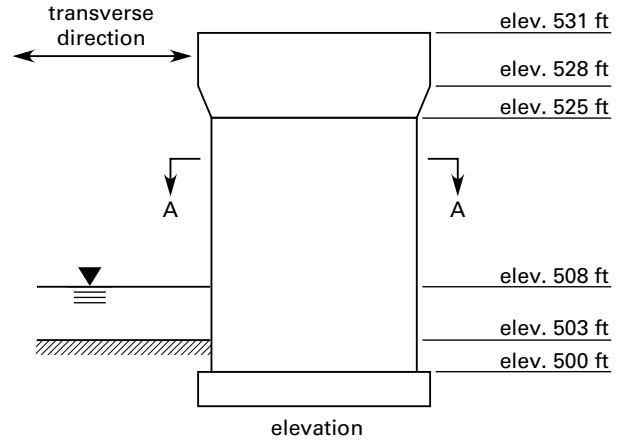
(D)



PROBLEM 14

A concrete pier is to be used for a bridge in seismic zone 4. An elevation view of the pier is shown in the figure. Use the following assumptions.

- $f'_c = 4$ ksi, $f_y = 60$ ksi, cover = 2 in
- ignore detailing requirements in the transverse direction



For a factored Extreme Event I shear load of 1500 kips in the longitudinal direction and axial compression load of 1000 kips, what is the maximum allowable spacing of ties in the plastic hinge zones?

- (A) 2.0 in
- (B) 2.5 in
- (C) 3.0 in
- (D) 4.0 in