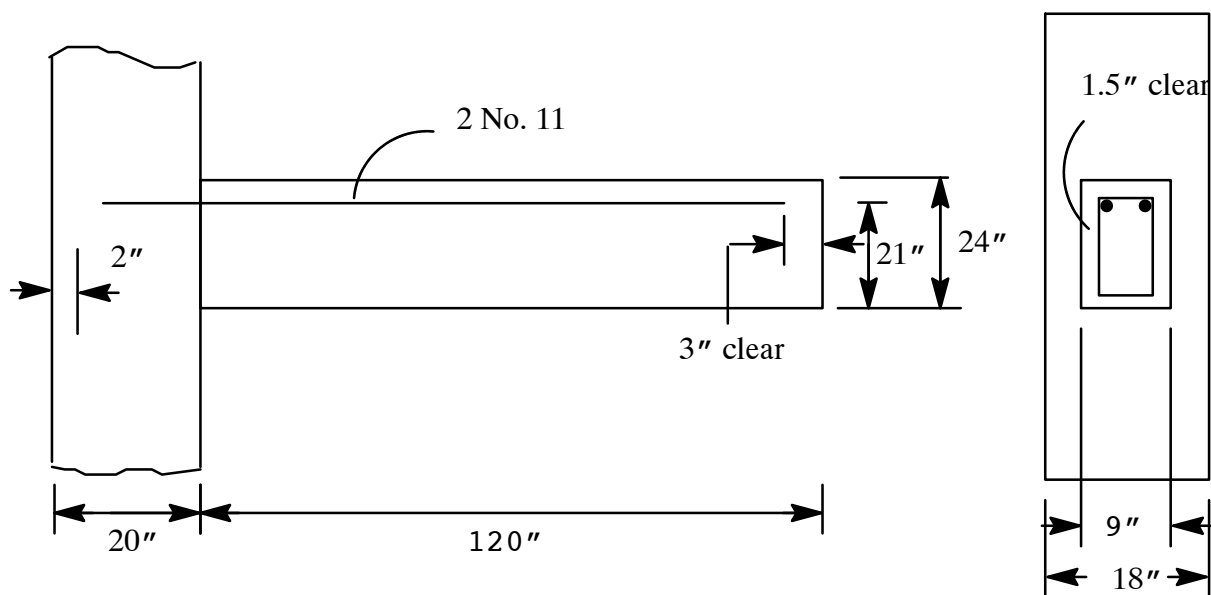


- The short beam shown below cantilevers from a supporting column at the left. It must carry calculated dead load of 1.0 kips/ft including its own weight, and service live load of 1.3 kips/ft. Tensile flexural reinforcement consists of two No. 11 bars at 21 inch effective depth. Assume a number 4 bar is used for stirrups and stirrups are at 4 inch spacing throughout the beam.

If the material for the beam provide $f_y = 60,000$ psi and $f'_c = 5,000$ psi, check to see if proper development length can be provided in the beam for the no. 11 bars.



2. An area of top flexural steel equal to 2.36 in^2 is required to carry the negative moment in the beam at support B. If two No. 10 bars are used as reinforcement, is sufficient embedment length available in the cantilever to satisfy ACI Code requirements for anchorage length? If your answer is no, what would you suggest to do to provide adequate anchorage length?

Two No. 5 bars in the bottom of the compression zone are used to anchor and to position the No. 3 stirrups, which have been sized to carry the shear produced by concentrated load at C. Main reinforcement has 2 in of clear cover.

$$f'_c = 3 \frac{\text{kips}}{\text{in}^2}$$

$$f_y = 60 \text{ ksi}$$

