

CE473
Spring 2012
Chapter 2
Homework Solution

1. Select preliminary dimensions for a beam of a frame with 25-ft spans.

$$\text{Total Depth} = h = \sim (25' \times 12''/\text{ft})/12 = 25''$$

Select $h = 24''$

$$\text{Width} = \sim 24''/2 = 12''$$

Select $b = 14''$

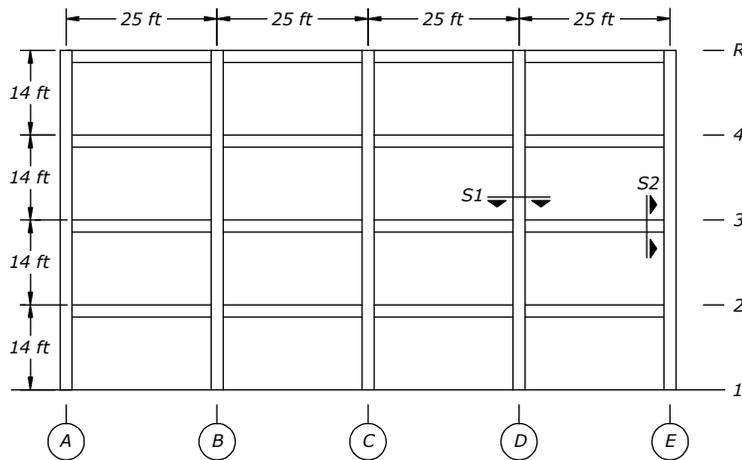
Select a 24" x 14" beam (dimensions that are multiples of two are preferable)

2. Select preliminary dimensions for the columns of the frame described in 1.) Assume that the clear story height is required to be 12ft.

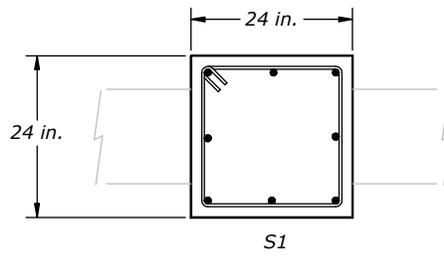
$$\text{Minimum Column Dimension} = H/4 \text{ to } H/7$$
$$(12' \times 12''/\text{ft})/4 = 36''$$
$$(12' \times 12''/\text{ft})/5 = 29''$$
$$(12' \times 12''/\text{ft})/6 = 24''$$
$$(12' \times 12''/\text{ft})/7 = 21''$$

Select Column Depth = Column Width = 24"

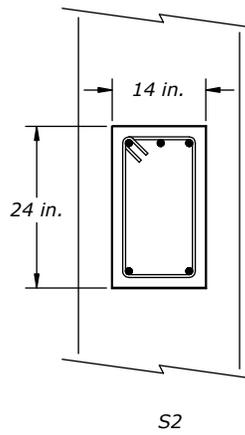
Column Dimensions: 24" x 24"



Elevation of Selected Frame



Column Section



Beam Section