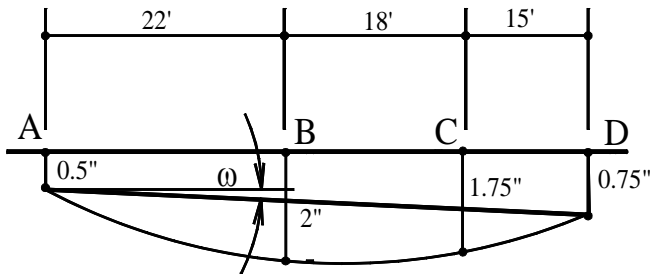


Example 1

In a reinforced structure, columns A-D have spacing of 22', 18', and 15'. Estimated column settlements are 0.50", 2.0", 1.75" and 0.75".

Would first crack appear in panel wall (Bjerrum, 1963)?

Solution (Example 1):



$$\omega = \frac{0.75 - 0.5}{12(22 + 18 + 15)} = 0.0004$$

$$\beta_{AB} = \frac{2.0 - 0.5}{12 \times 22} = 0.0057 > 0.003 \rightarrow \text{NG}$$

$$\beta_{BC} = \frac{2.0 - 1.75}{12 \times 18} = 0.0011 < 0.003 \rightarrow \text{OK}$$

$$\beta_{CD} = \frac{1.75 - 0.75}{12 \times 15} = 0.0056 > 0.003 \rightarrow \text{NG}$$

b. $1/300 = 0.0033 < 0.00516$ first cracks will occur between AB & CD.