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ARCH 324 - Structures 2, Winter 2009

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SOLVE BY DEFLECTION METHOD

CHOOSE B AS REDUNDANT
WITH B REMOVED:
SOLVE FOR $\delta_B$ BY SECOND MOMENT AREA METHOD

$\delta_B = \frac{2730.63/\text{EI}}{\text{EI}}$

$\delta_B = \frac{47784.67}{\text{EI}} = \frac{\Delta_K}{\text{EI}}$

WITH B AS LOAD:
SOLVE WITH EQUATION IN D-25

$\Delta_K = \frac{P}{48\text{EI}} = \frac{48^3}{48\text{EI}} = \frac{47784.67}{\text{EI}}$

$P = 20.74 \text{ k}$

BY SYMMETRY:
$A + C = 64 - 20.74 = 43.26$
$A = C = 21.63 \text{ k}$
LOAD DIAGRAM

\[ w = 2 \text{k/ft} \]

\[ w = 2 \text{k/ft} \]

\[ 21.63 \text{k} \]
\[ 20.74 \text{k} \]
\[ 21.69 \text{k} \]

SHEAR DIAGRAM

\[ 10.37 \text{k} \]
\[ 26.88 \]
\[ 82.96 \]
\[ 116.96 \]
\[ -10.37 \]
\[ 116.96 \text{k-ft} \]
\[ 90.08 \text{k-ft} \]
\[ 912 \text{k-ft} \]

MOMENT DIAGRAM