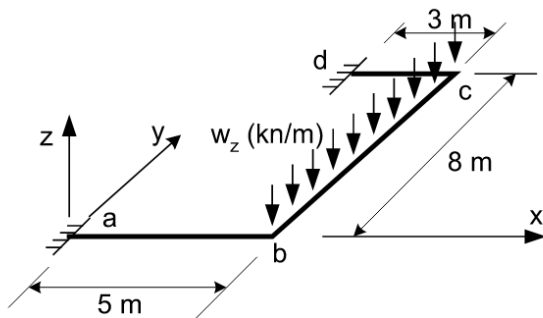


Verification Problem 1:

Notes:

- 1) The load $W_y = 15 \text{ kN/m}$ is a vertical distributed load along the length of the member, which you will need to convert to equivalent amounts of distributed load in the local x' and y' axis of the member.

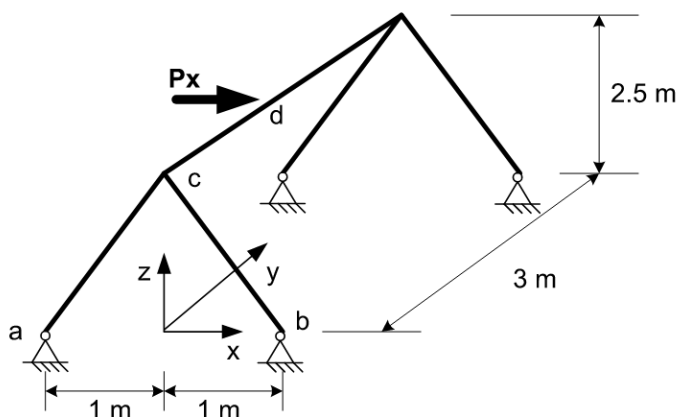
Verification Problem 2:



Notes:

- 1) The structure consists of a horizontal grid of rectangular tubular members measuring $100 \times 300 \text{ mm}$ square. The members are all oriented with their tall dimension parallel to the global z -axis (vertical direction). The tubular members have the following properties: $A = 11,000 \text{ mm}^2$, $I_{\text{major}} = 1.06 \times 10^8 \text{ mm}^4$, $I_{\text{minor}} = 1.74 \times 10^7 \text{ mm}^4$, $J = 5.29 \times 10^7 \text{ mm}^4$.
- 2) Members are steel with $E = 200 \text{ kN/mm}^2$ and $\nu = 0.3$.
- 3) The load $W_z = 5 \text{ kN/m}$ is a vertical distributed load along the length of the member.

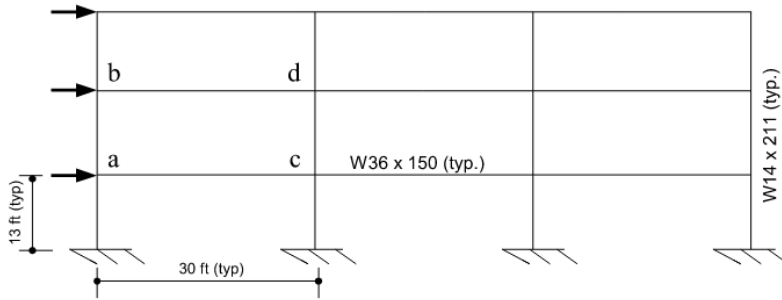
Verification Problem 3 – Swing Set:



Notes:

- 1) The structure is built with round 75 mm diameter tubular members have the following properties: $A = 1,430 \text{ mm}^2$, $I = 1.26 \times 10^6 \text{ mm}^4$, $J = 2.52 \times 10^6 \text{ mm}^4$.
- 2) Members are steel with $E = 200 \text{ kN/mm}^2$ and $\nu = 0.3$.
- 3) The load $P_x = -4.5 \text{ kN}$

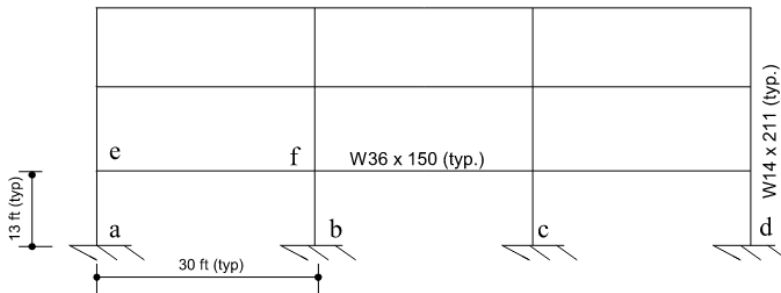
Verification Problem 4:



Notes:

- 1) Members are steel with $E = 30,000 \text{ k/in}^2$ and $\nu = 0.3$.
- 2) The applied lateral load at each floor is $P_x = 9.5 \text{ kips}$
- 3) Base your analysis on centerline dimensions (i.e., ignoring finite joint size effects).

Verification Problem 5:

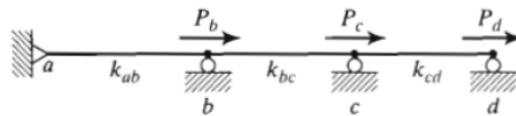


Notes:

- 1) This is the same structure as for Problem 4.
- 2) For this problem, do NOT include member shear deformations.

Perform an analysis where you apply a vertical settlement of $\Delta = -1 \text{ inch}$ to the support at point b. Report the following information from this analysis.

Verification Problem 6:



Problem 11.18

Notes:

- 1) This problem is same as the 1st problem of Assignment 4.
- 2) $K_{ab} = K_{cd} = 1$
- 3) $P_b = 1$, $P_d = 1$, and $P_c = 0$

Find the condition number for the cases did in the assignment i.e. $K_{bc} = 1 \times 10^4$, 1×10^9 , 1×10^{16} . Report the following information from this analysis.