Example 3.1 A W12×65 section made of A36 steel is to be used as an axially loaded compression member. The length of the member \( L \) is 40 ft. Find the axial compression design strength using the formulas for the following cases:

1. The top and bottom of the beam are pinned.
2. There is a bracing at the mid-length in the weak-axis direction.

Example 3.2 Using A36 steel, select the lightest W14 section available for the service column loads \( P_D = 100 \) kips and \( P_L = 160 \) kips. \( KL = 10 \) ft.

Example 3.3 Repeat Example 3.2 using column table.