The reinforced concrete beam shown below is part of an apartment building. The cantilever portion serves as a balcony. Compute and graph the shear and moment envelopes for the service dead and live loads (separately). Pattern loading will be required to develop the envelopes. The dead load is 2.0 kips/ft, the live load is 4.0 kips/ft.

30 kips from curtain wall

Reinforcing steel

A

8 ft

B

32 ft

C