

flexural member shown below/determine the lightest HEB section of S355 MPa) that can safely support the given loads according to s. Consider all possible limit states. The given dead load (D) of 100 kN and 225 kN are service loads (unfactored loads). Use LRFD and the design load on $1.2D+1.6L$. Lateral braces are provided at the supports and along the span at intervals. The service live load deflection should not exceed $L/800$. Note that for a simply supported beam loaded at the mid-span the deflection is $\Delta = \frac{PL^3}{48EI}$. Take $E = 200\text{GPa}$.

