J. Design Procedure for Laterally Supported Beams

There is no *standard* set of design steps but the following will give some indication of how most designs proceed:

Step 1: Design Load
Find the maximum moment M_u and the maximum shear V_u. The beam diagrams and formulas are helpful for the case of unusual loads.

Step 2: Select a member.
Use **Load Factor Design Selection Table** to find the lightest beam which has a **moment capacity** $\phi_b M_n$ greater than the load M_u.

Step 3: Check member.

- **Deflection:** Check if deflections for the **unfactored live load** and for the **service load** are less that $L/360$ and $L/240$, respectively. The **Beam Diagrams and Formulas** are useful in this step. If deflections are too large, use the **Moment of Inertia Selection Tables** to find a beam with a larger moment of inertia.
- **Shear:** Check if the **shear capacity** $\phi_V V_n$ is greater than the maximum shear V_u. If the shear capacity is too small, find a heavier and deeper beam using the **Load Factor Design Selection Table**.
- **Moments:** Calculate the **moment capacity** $\phi_b M_n$ using the design formulas. The result should be very close to the value tabulated in **Load Factor Design Selection Table**.