Flexural Design Example

# Example Problem

Determine the LRFD flexural design strength for a W10x12 beam with an unbraced length of 2 ft.

## 1. Determine if Section is Compact

## 2. Determine the limiting ratios (AISC Table B4.1b)

### Check Flange

$\\[20pt] \left( \lambda\_{pf} < \lambda\_{flange} < \lambda\_{r} \right) = \left( 9.15 < 9.43 < 24.08 \right) = 1 \;\;\; \therefore \text{{\color{blue} \ Noncompact Flange}}$

### Check Web

$\\[20pt] \left( \lambda\_{web} < \lambda\_{pw} \right) = \left( 46.6 < 90.55 \right) = 1 \;\;\; \therefore \text{{\color{blue} \ Compact Web}}$

## 3. Calculate the LB strength with AISC Spec F3

## 4. Calculate LTB strength with AISC spec F2.2

## 5. Design Strength