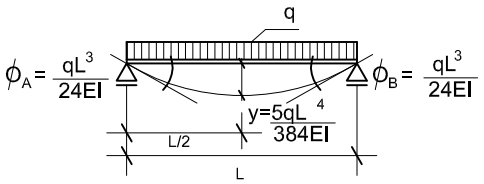
GUIA Nº2 - RESULTADOS

a)



l = 3,0 m
q = 0,5 m x 250 kg/m^2 = 125 kg/ml

$M = \frac{q\,l^2}{8} = \frac{125 \times 3^2}{8} = 140{,}625$ kgm

$W = \frac{M}{f} = \frac{14062{,}5}{69} = 203{,}8$ cm^3

$W = \frac{b\,h^2}{6}$ $h = \sqrt{\frac{203{,}8 \times 6}{4{,}5}} = 16{,}48$ cm

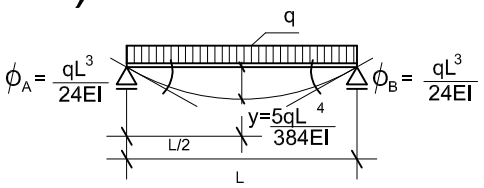
2" x 8"

$I = \frac{b\,h^3}{12} = \frac{4{,}5 \times 19^3}{12} = 2572$ cm^4

$y = \frac{5 \times 1{,}25 \times 300^4}{384 \times 61000 \times 2572} = 0{,}8$ cm

$y_{adm} = \frac{300}{300} = 1{,}0$ cm

b)



l = 4,5 m
q = 3,0 m x 250 kg/m^2 = 750 kg/ml

$M = \frac{q\,l^2}{8} = \frac{750 \times 4{,}5^2}{8} = 1898{,}43$ kgm

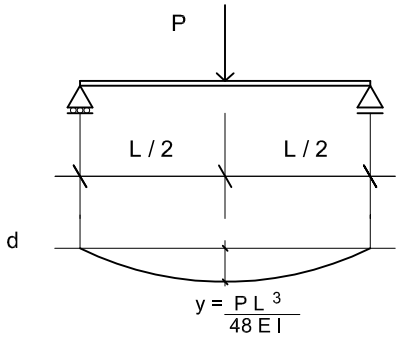
$W = \frac{M}{f} = \frac{189843}{1440} = 131{,}8$ cm^3

IPE 180

$y = \frac{5 \times 7{,}5 \times 450^4}{384 \times 2100000 \times 1320} = 1{,}44$ cm

$y_{adm} = \frac{450}{300} = 1{,}5$ cm

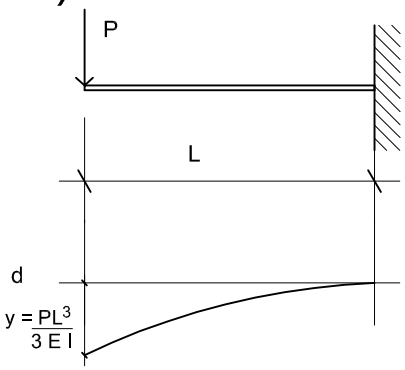
c)



l = 6,0 m
P = 2,25 m x 3,0 m x 250 kg/m^2 = 1689 kg
IPE 240

$y = \frac{1689 \times 600^3}{48 \times 2100000 \times 3890} = 0{,}93$ cm

d)



l = 3,0 m
P = 2,25 m x 1,5 m x 250 kg/m^2 = 843,75 kg

$y_{adm} = \frac{300}{300} = 1{,}0$ cm

$I = \frac{843{,}75 \times 300^3}{3 \times 2100000 \times 1} = 3616$ cm^4

IPE 240