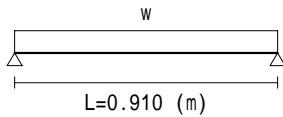


5 - 5 根太の設計

1F X1Y1 ~ X5Y2
45.0 (mm) × 45.0 (mm)@360.0 (mm) 米松

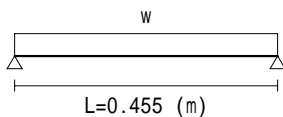


A=2025 (mm²) Z=15188 (mm³) I=341719 (mm⁴)
Fb=28.20 (N/mm²) Fs=2.40 (N/mm²) E=9.800 × 10³ (N/mm²)
Fsys=1.25 L=0.910 (m)
Wg=350 (N/m²) Wp=1800 (N/m²) Wp'=600 (N/m²)

[長期]

$w=(Wg+Wp) \times 0.360=774.0$ (N/m)
 $w'=(Wg+Wp') \times 0.360=342.0$ (N/m)
 $M=1/8 \times (w \times L^2)=80.12$ (N·m)
 $Q=1/2 \times (w \times L)=352.2$ (N)
 $fb=1.1 \times Fb/3 \times Fsys=12.93$ (N/mm²)
 $fs=1.1 \times Fs/3=0.88$ (N/mm²)
 $/fb=(M/Z)/fb=5.28/12.93=0.41$ 1.0 ----- OK
 $/fs=(1.5 \times Q/A)/fs=0.26/0.88=0.30$ 1.0 ----- OK
 $=5/384 \times (w' \times L^4)/(E \times I) \times 2.0=1.824$ L/300=3.033 (mm) ----- OK

1F X1Y5 ~ X2Y6
45.0 (mm) × 45.0 (mm)@360.0 (mm) 米松

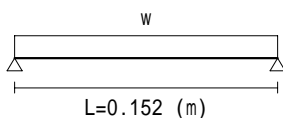


A=2025 (mm²) Z=15188 (mm³) I=341719 (mm⁴)
Fb=28.20 (N/mm²) Fs=2.40 (N/mm²) E=9.800 × 10³ (N/mm²)
Fsys=1.25 L=0.455 (m)
Wg=350 (N/m²) Wp=1800 (N/m²) Wp'=600 (N/m²)

[長期]

$w=(Wg+Wp) \times 0.360=774.0$ (N/m)
 $w'=(Wg+Wp') \times 0.360=342.0$ (N/m)
 $M=1/8 \times (w \times L^2)=20.03$ (N·m)
 $Q=1/2 \times (w \times L)=176.1$ (N)
 $fb=1.1 \times Fb/3 \times Fsys=12.93$ (N/mm²)
 $fs=1.1 \times Fs/3=0.88$ (N/mm²)
 $/fb=(M/Z)/fb=1.32/12.93=0.10$ 1.0 ----- OK
 $/fs=(1.5 \times Q/A)/fs=0.13/0.88=0.15$ 1.0 ----- OK
 $=5/384 \times (w' \times L^4)/(E \times I) \times 2.0=0.114$ L/300=1.517 (mm) ----- OK

1F X1Y6 ~ X2Y6.5
45.0 (mm) × 45.0 (mm)@360.0 (mm) 米松



A=2025 (mm²) Z=15188 (mm³) I=341719 (mm⁴)
Fb=28.20 (N/mm²) Fs=2.40 (N/mm²) E=9.800 × 10³ (N/mm²)
Fsys=1.25 L=0.152 (m)
Wg=350 (N/m²) Wp=1800 (N/m²) Wp'=600 (N/m²)

[長期]

$w=(Wg+Wp) \times 0.360=774.0$ (N/m)
 $w'=(Wg+Wp') \times 0.360=342.0$ (N/m)
 $M=1/8 \times (w \times L^2)=2.24$ (N·m)
 $Q=1/2 \times (w \times L)=58.8$ (N)
 $fb=1.1 \times Fb/3 \times Fsys=12.93$ (N/mm²)
 $fs=1.1 \times Fs/3=0.88$ (N/mm²)
 $/fb=(M/Z)/fb=0.15/12.93=0.01$ 1.0 ----- OK
 $/fs=(1.5 \times Q/A)/fs=0.04/0.88=0.05$ 1.0 ----- OK
 $=5/384 \times (w' \times L^4)/(E \times I) \times 2.0=0.002$ L/300=0.507 (mm) ----- OK