Erratum to HERON Vol. 50, No. 1 on page 63 and 64.

Method for including restrained warping in traditional frame analyses

P.C.J. Hoogenboom and A. Borgart

It was brought to our attention that a calculation error occurred in HERON Vol. 50, No. 1 on page 63 and 64. The section below includes the correct numbers.

The frame program computes a rotation of $-140 \times 10^{-5}$ rad in the middle of the bridge. This is 7% smaller than the unrestrained behaviour. The program computes the torsion moment $M_t = -1345 \times 10^4$ Nm for the left beam and $1345 \times 10^4$ Nm for the right beam. Therefore, the largest bi-moment in the right end of the left beam is

$$B = \frac{l}{\beta} M_t = \frac{30}{14.30} (-1345 \times 10^4) = -2822 \times 10^4 \text{ Nm}^2.$$

The largest bi-moment in the left end of the right beam is

$$B = \frac{l}{\beta} M_t = \frac{30}{14.30} (1345 \times 10^4) = -2822 \times 10^4 \text{ Nm}^2.$$

Using the torsion moment and bi-moment a program for cross-section analysis calculates the shear stress distribution and the normal stress distribution. The largest shear stress is -1.74 N/mm$^2$, which occurs everywhere in the bottom flange to the left of the symmetry plane. The largest normal stress is 3.64 N/mm$^2$, which occurs in the symmetry plane in the left side of the bottom flange (Fig. 6).

![Figure 6: Normal stress distribution due to restrained warping in the middle cross-section](image)