

ERRATUM

'The Basilica Ulpia, Early Christian Churches and the Roman Double Truss' — ERRATUM

by Elwin C. Robison

doi:10.1017/arh.2021.9, published online 5 November 2021

The Technical Appendix of the above-mentioned article contained errors in the calculations. These were:

1. (c) The snow load minimum for Rome and its environs, given as 0.60 kN/m² (12.5 lb/ft²), was applied to the length of the rafter and not the standard procedure of applying it to the horizontal projection to account for varying climate with potentially greater snowfall.

1. (e) The equation of equilibrium at the toe of the rafter should have read:

$$0 = [290 \text{ lb/ft} \times (39 \text{ ft } 9 \text{ in.} \div 2) \times (43 \text{ ft } 0 \text{ in.})] - [\text{horizontal force} \times 16 \text{ ft } 1 \text{ in.}]$$

$$\text{Thus the horizontal force} = 15,400 \text{ lb}$$

And the equation for the axial load should have read:

$$\text{Thus the axial force} = \sqrt{(15,400 \text{ lb}^2 + 12,400 \text{ lb}^2)} = 19,800 \text{ lb}$$

In the figure, 19,900 lb should have been 15,400 lb, and 23,400 lb should have been 19,800 lb. Following from this correction, the last paragraph on page 205 should have stated that the spreading force of the rafters can be calculated at 15,400 lb, or 68.5 kN, for each half truss.

1. (f) The equation for the total axial force should have read:

$$19,800 \text{ lb} + 10,500 \text{ lb} = 30,300 \text{ lb}$$

And the axial stress in the rafter:

$$30,300 \text{ lb} / 248 \text{ in.}^2 = 122 \text{ lb/in.}^2$$

1. (i) The bending stresses combined with the axial stresses should have read:

$$(122 \text{ lb/in.}^2 \div 600 \text{ lb/in.}^2) + (312 \text{ lb/in.}^2 \div 847 \text{ lb/in.}^2) \approx 0.60$$

2. The interaction equation for the Basilica Ulpia should have read:

$$(169 \text{ lb/in.}^2 \div 600 \text{ lb/in.}^2) + (382 \text{ lb/in.}^2 \div 847 \text{ lb/in.}^2) \approx 0.75$$

3. The interaction equation should have read:

$$(249 \text{ lb/in.}^2 \div 600 \text{ lb/in.}^2) + (382 \text{ lb/in.}^2 \div 847 \text{ lb/in.}^2) \approx 0.85$$

And so the rafters of the Basilica Ulpia with diagonals would have been stressed to 85 per cent of their capacity under full loads.

References

1 Elwin C. Robison, 'The Basilica Ulpia, Early Christian Churches and the Roman Double Truss', *Architectural History*, 64 (2021), pp. 187–222. doi: 10.1017/arh.2021.9