

Design of Elastomeric Bearing Device using Method "A":

The equation in the AASHTO LFD and LRFD Specifications for checking rotation when designing Elastomeric Bearings according to Method "A" is incorrect. Replace LFD equation 14.6.6.3.5-1 and LRFD equations 14.7.6.3.5-1 and -2 with the following:

$$\sigma_{TL} \geq 0.5 \cdot G \cdot S \cdot \left(\frac{\theta_m}{n} \right) \left(\frac{B}{h_{ri}} \right)^2$$

$\sigma_{TL} = \sigma_s$ = average compressive stress due to total load (MPa). (Minimum of ≤ 7 MPa or ≤ 1.0 G S)

G = shear modulus of elastomer (MPa).
(For 60 Hardness, G = 0.9 to 1.4 MPa)

S = shape factor of the thickest layer of the bearing:

$$S = \frac{L \cdot W}{2 \cdot h_{ri} \cdot (L + W)}$$

L = length of the bearing in the longitudinal direction (mm).

W = width of the bearing in the transverse direction (mm).

$\theta_m = \theta_s = \theta_{s,x}$ or $\theta_{s,z}$ = summation of all service rotations in direction of interest (radians).

n = number of interior layers of elastomer.

B = length of pad if rotation is about transverse axis, or width of pad if rotation is about its longitudinal axis (mm).

h_{ri} = thickness of the i^{th} layer of elastomer (mm).