

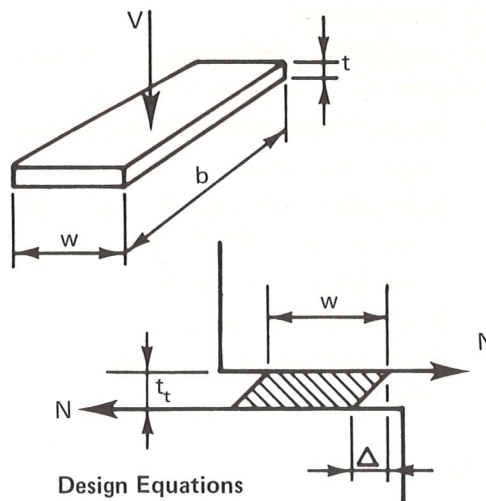
Fig. 5.4.1 Design of structural grade elastomeric bearing pads

Design Recommendations

1. Use unfactored loads for design
2. Maximum compressive stress = 1000 psi
3. Maximum shear stress = 100 psi
4. Maximum shear deformation = $t/2$
5. Maximum compressive strain = 15%
6. $w \geq 5t$ or 4 in.
7. $t_t \geq 1/4$ in. for stems, $3/8$ in. for beams

Notation

b = dimension perpendicular to beam span, in.
 w = dimension parallel to beam span, in.
 t = thickness of pad, or of each lamination in pads laminated with bonded steel plates, in.
 t_t = total thickness of pad or pad assembly, in.
 V = unfactored vertical reaction, lb
 N = unfactored axial tension, lb
 f = unfactored compressive stress, psi
 G = shear modulus, psi
 G_t = long term shear modulus = $0.5G$, psi
 Δ = shear deformation, in.



Design Equations

$$\text{Shape factor} = \frac{wb}{2(w+b)t}$$

$$f = \frac{V}{wb}$$

$$N = \frac{\Delta wb G_t}{t_t}$$

