



Overview of formulas

A_n	$= b \cdot h - (n \cdot d) \cdot (h_{ii} + h_i) - b_u \cdot t_i$
A_k	$= (b - m \cdot d) \cdot h_{ii}$
A_A	$= (b - m \cdot d) \cdot h_i$
g	$= (A_b \cdot \rho_{Holz} + A_k \cdot \rho_{Isolation} + A_A \cdot \rho_{Absorber}) / 1000^2 / b \cdot 1000$
s_y	$= (m \cdot d \cdot h^2 / 2 + (n \cdot d_i - b_u) \cdot t_i^2 / 2 + n \cdot d_i \cdot t_i \cdot (t_i + h_i + t_{ii} / 2) + n \cdot d_i \cdot t_{iii} \cdot (h - t_{iii} / 2)) / A_n$
I_y	$= m \cdot d \cdot h^3 / 12 + m \cdot d \cdot h \cdot (h / 2 - s_y)^2 + (n \cdot d_i - b_u) \cdot t_i^3 / 12 + (n \cdot d_i - b_u) \cdot t_i \cdot (s_y - t_i / 2)^2 + n \cdot d_i \cdot t_{ii}^3 / 12 + n \cdot d_i \cdot t_{ii} \cdot (s_y - t_i - h_i - t_{ii} / 2)^2 + n \cdot d_i \cdot t_{iii}^3 / 12 + n \cdot d_i \cdot t_{iii} \cdot (h - s_y - t_{iii} / 2)^2$
$S_y (s_y \leq t_i)$	$= m \cdot d \cdot s_y^2 / 2 + (n \cdot d_i - b_u) \cdot s_y^2 / 2$
$S_y (t_i < s_y \leq t_i + h_i)$	$= m \cdot d \cdot s_y^2 / 2 + (n \cdot d_i - b_u) \cdot t_i \cdot (s_y - t_i / 2)$
$S_y (t_i + h_i < s_y \leq t_i + h_i + t_{ii})$	$= m \cdot d \cdot s_y^2 / 2 + (n \cdot d_i - b_u) \cdot t_i \cdot (s_y - t_i / 2) + n \cdot d_i \cdot (s_y - (t_i + h_i))^2 / 2$
$S_y (t_i + h_i + t_{ii} < s_y \leq h - t_{iii})$	$= m \cdot d \cdot (h - s_y)^2 / 2 + n \cdot d_i \cdot t_{iii} \cdot (h - s_y - t_{iii} / 2)$
$S_y (h - t_{iii} \leq s_y)$	$= m \cdot d \cdot (h - s_y)^2 / 2 + n \cdot d_i \cdot (h - s_y)^2 / 2$
A_w	$= m \cdot d \cdot I_y / S_y$
$R_{v,z,k}$	$= A_w \cdot f_{v,k}$
$R_{m,y,k}$	$= \text{MIN}(I_y / (h - s_y) \cdot f_{m,k} ; I_y / S_y \cdot f_{m,k})$
$R_{v,z,d,SIA}$	$= A_w \cdot f_{v,d}$
$R_{m,y,d,SIA}$	$= \text{MIN}(I_y / (h - s_y) \cdot f_{m,d} ; I_y / S_y \cdot f_{m,d})$
$A_{n,fi}$	$= b \cdot h_i - (n \cdot d) \cdot (h_{ii,fi} + h_{i,fi}) - b_u \cdot t_{i,fi}$
$s_{y,fi}$	$= (m \cdot d \cdot h_i^2 / 2 + (n \cdot d_i - b_u) \cdot t_{i,fi}^2 / 2 + n \cdot d_i \cdot t_{ii,fi} \cdot (t_{i,fi} + h_{i,fi} + t_{iii,fi} / 2) + n \cdot d_i \cdot t_{iii,fi} \cdot (h_i - t_{iii,fi} / 2)) / A_{n,fi}$
$I_{y,fi}$	$= m \cdot d \cdot h_i^3 / 12 + m \cdot d \cdot h_i \cdot (h_i / 2 - s_{y,fi})^2 + (n \cdot d_i - b_u) \cdot t_{i,fi}^3 / 12 + (n \cdot d_i - b_u) \cdot t_{i,fi} \cdot (s_{y,fi} - t_{i,fi} / 2)^2 + n \cdot d_i \cdot t_{ii,fi}^3 / 12 + n \cdot d_i \cdot t_{ii,fi} \cdot (s_{y,fi} - t_{i,fi} - h_{i,fi} - t_{iii,fi} / 2)^2 + n \cdot d_i \cdot t_{iii,fi}^3 / 12 + n \cdot d_i \cdot t_{iii,fi} \cdot (h_i - s_{y,fi} - t_{iii,fi} / 2)^2$
$S_{y,fi} (s_{y,fi} \leq t_{i,fi})$	$= m \cdot d \cdot s_{y,fi}^2 / 2 + (n \cdot d_i - b_u) \cdot s_{y,fi}^2 / 2$
$S_{y,fi} (t_{i,fi} < s_{y,fi} \leq t_{i,fi} + h_{i,fi})$	$= m \cdot d \cdot s_{y,fi}^2 / 2 + (n \cdot d_i - b_u) \cdot t_{i,fi} \cdot (s_{y,fi} - t_{i,fi} / 2)$
$S_{y,fi} (t_{i,fi} + h_{i,fi} < s_{y,fi} \leq t_{i,fi} + h_{i,fi} + t_{iii,fi})$	$= m \cdot d \cdot s_{y,fi}^2 / 2 + (n \cdot d_i - b_u) \cdot t_{i,fi} \cdot (s_{y,fi} - t_{i,fi} / 2) + n \cdot d_i \cdot (s_{y,fi} - (t_{i,fi} + h_{i,fi}))^2 / 2$
$S_{y,fi} (t_{i,fi} + h_{i,fi} + t_{iii,fi} < s_{y,fi} \leq h_i - t_{iii,fi})$	$= m \cdot d \cdot (h_i - s_{y,fi})^2 / 2 + n \cdot d_i \cdot t_{iii,fi} \cdot (h_i - s_{y,fi} - t_{iii,fi} / 2)$
$S_{y,fi} (h_i - t_{iii,fi} \leq s_{y,fi})$	$= m \cdot d \cdot (h_i - s_{y,fi})^2 / 2$
$A_{w,fi}$	$= m \cdot d \cdot I_{y,fi} / S_{y,fi}$
$R_{v,z,k,fi}$	$= A_{w,fi} \cdot f_{v,k,fi}$
$R_{m,y,k,fi}$	$= \text{MIN}(I_{y,fi} / (h_i - s_{y,fi}) \cdot f_{m,k,fi} ; I_{y,fi} / S_{y,fi} \cdot f_{m,k,fi})$
$R_{v,z,d,fi,SIA}$	$= A_{w,fi} \cdot f_{v,d,fi}$
$R_{m,y,d,fi,SIA}$	$= \text{MIN}(I_{y,fi} / (h_i - s_{y,fi}) \cdot f_{m,d,fi} ; I_{y,fi} / S_{y,fi} \cdot f_{m,d,fi})$

