AM15-AB-B1 Parte 1/2

→ Esforço no tirante: $N_{sd} = \frac{q_{sd} \cdot L}{2}$

$A_g = (2b - t) \times t = (2 \times 10{,}16\,cm - 0{,}79\,cm) \times 0{,}79\,cm$

$A_g = \boxed{15{,}429\,cm^2}$

$Rdt_{ESB} = A_g \cdot f_y / \gamma_{a1} = 15{,}429\,cm^2 \times 25\,kN/cm^2 / 1{,}1 = \boxed{350{,}7\,kN}$

$A_n = A_g - (d + 0{,}35\,cm) \times t = 15{,}429\,cm^2 - (1{,}9\,cm + 0{,}35\,cm) \times 0{,}79\,cm$

$A_n = \boxed{13{,}652\,cm^2}$

$C_t = 1 - e_c / l_c = 1 - 2{,}84\,cm / 11{,}5\,cm = \boxed{0{,}75304}$ $\geq 0{,}60$, $\leq 0{,}90$ } ok!

$A_e = C_t \times A_n = 0{,}75304 \times 13{,}652\,cm^2 = \boxed{10{,}281\,cm^2}$

$Rdt_{RSC} = A_e \cdot f_u / \gamma_{a2} = 10{,}281\,cm^2 \times 40\,kN/cm^2 / 1{,}35 = \boxed{304{,}6\,kN}$

$A_{nv} = [(a + l_c) - 2{,}5 d_{pod}]\, t$

$= [3{,}8\,cm + 11{,}5\,cm - 2{,}5(1{,}9\,cm + 0{,}35\,cm)] \times 0{,}79\,cm = \boxed{7{,}643\,cm^2}$

$A_{gv} = [a + l_c]\, t = (3{,}8\,cm + 11{,}5\,cm)\, 0{,}79\,cm = \boxed{12{,}087\,cm^2}$

$A_{nt} = \left(\frac{b}{2} - 0{,}5 d_{pod}\right) t = \left(\frac{10{,}16\,cm}{2} - 0{,}5(1{,}9\,cm + 0{,}35\,cm)\right) \times 0{,}79\,cm$

$A_{nt} = \boxed{3{,}1245\,cm^2}$

$Rd_{tas1} = 1/\gamma_{a2} (0{,}60\, f_u\, A_{nv} + C_{ts}\, f_u\, A_{nt})$

$Rd_{tas1} = 1/1{,}35 (0{,}60 \times 40\,kN/cm^2 \times 7{,}643\,cm^2 + 1 \times 40\,kN/cm^2 \times 3{,}1245\,cm^2)$

$Rd_{as1} = \underline{228{,}45\,kN}$

$$Rdtas2 = \frac{1}{\gamma a2}(0{,}60 \times fy\, Agv + Cts\, fu\, Ant)$$

(=)

$$Rdtas2 = \frac{1}{1{,}35}\left(0{,}60 \times 25\,kN/cm^2 \times 12{,}087\,cm^2 + 1{,}0 \times 40\,kN/cm^2 \times 3{,}1245\,cm^2\right)$$

$$Rdtas2 = 226{,}88\,kN$$

$$Rdeas = \text{MINIMO} \begin{cases} Rdtas1 = 228{,}5\,kN \\ Rdtas2 = 226{,}9\,kN \end{cases}$$

$$\left.\begin{array}{l} RdtESB = 350{,}7\,kN \\ RdtRSL = 304{,}6\,kN \\ Rdtas = 226{,}9\,kN \end{array}\right\} NtRd = 226{,}9\,kN \quad (\text{MENOR RESISTÊNCIA})$$

COMO: $Nsd = qsd \cdot L/2$ $\qquad qsd_{MAX} = \frac{2\,NtRd}{L}$

$$qsd\,MAX = 2 \times 226{,}9\,kN / 6{,}50\,m = 69{,}8\,kN/m$$