



ANEXO A

MEMORIAL DE CÁLCULO DAS ESCADAS DO PROJETO ESTRUTURAL DO ANEXO DA CASA NORIVAL DE FREITAS



ANEXO A – TABELA RESUMO DOS RESULTADOS

Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N_t	N_c	M_x	M_y	V_x	V_y	$M_x V_y$	$M_y V_x$	$N_c M_x M_y$	$N_t M_x M_y$	M_t	
N3/N4	$(b_w/t) \leq 500$ Passa	$x: 0 \text{ m}$ $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$x: 0.426 \text{ m}$ $\eta = 2.3$	$x: 0.046 \text{ m}$ $\eta = 0.1$	$x: 0.76 \text{ m}$ $\eta = 5.3$	$M_{sd} = 0.00$ N.A. ⁽¹⁾	$x: 0 \text{ m}$ $\eta = 0.5$	$x: 0 \text{ m}$ $\eta = 1.7$	$x: 0.76 \text{ m}$ $\eta = 0.3$	N.A. ⁽²⁾	N.A. ⁽³⁾	$x: 0.76 \text{ m}$ $\eta = 8.1$	$x: 0.046 \text{ m}$ $\eta = 3.6$	PASSA $\eta = 8.1$
N4/N2	$(b_w/t) \leq 500$ Passa	$x: 0.4 \text{ m}$ $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$x: 0.04 \text{ m}$ $\eta = 2.2$	$x: 0.4 \text{ m}$ $\eta = 2.0$	$x: 0.76 \text{ m}$ $\eta = 10.8$	$M_{sd} = 0.00$ N.A. ⁽¹⁾	$x: 0.4 \text{ m}$ $\eta = 0.5$	$x: 0.76 \text{ m}$ $\eta = 2.2$	$x: 0.76 \text{ m}$ $\eta = 1.2$	N.A. ⁽²⁾	$x: 0.76 \text{ m}$ $\eta = 14.4$	$x: 0.04 \text{ m}$ $\eta = 8.7$	$x: 0.4 \text{ m}$ $\eta = 0.9$	PASSA $\eta = 14.4$
N23/N45	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$x: 0.667 \text{ m}$ $\eta = 7.2$	$x: 0 \text{ m}$ $\eta = 3.2$	$x: 0 \text{ m}$ $\eta = 28.6$	$x: 0.667 \text{ m}$ $\eta = 3.6$	$x: 0 \text{ m}$ $\eta = 0.9$	$x: 0 \text{ m}$ $\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 8.2$	$x: 0 \text{ m}$ $\eta = 37.2$	N.A. ⁽⁵⁾	$x: 0 \text{ m}$ $\eta = 4.2$	PASSA $\eta = 37.2$
N45/N42	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$x: 0.212 \text{ m}$ $\eta = 7.7$	$x: 0.383 \text{ m}$ $\eta = 3.7$	$x: 0.383 \text{ m}$ $\eta = 7.6$	$x: 0.212 \text{ m}$ $\eta = 1.3$	$x: 0.212 \text{ m}$ $\eta = 1.4$	$x: 0.383 \text{ m}$ $\eta = 0.1$	$x: 0.383 \text{ m}$ $\eta = 0.6$	$x: 0.383 \text{ m}$ $\eta = 19.0$	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 19.0$
N42/N3	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$x: 0 \text{ m}$ $\eta = 0.5$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 0.1 \text{ m}$ $\eta = 0.5$	$x: 0 \text{ m}$ $\eta = 9.6$	$x: 0 \text{ m}$ $\eta = 3.6$	$x: 0.05 \text{ m}$ $\eta = 1.0$	$x: 0.099 \text{ m}$ $\eta < 0.1$	$x: 0 \text{ m}$ $\eta = 1.0$	N.A. ⁽³⁾	$x: 0 \text{ m}$ $\eta = 10.0$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 10.0$
N23/N48	$x: 0 \text{ m}$ $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$x: 0.085 \text{ m}$ $\eta = 1.6$	$x: 0.17 \text{ m}$ $\eta = 2.7$	$x: 0.17 \text{ m}$ $\eta = 55.4$	$x: 0.085 \text{ m}$ $\eta = 19.3$	$x: 0.085 \text{ m}$ $\eta = 3.3$	$x: 0.17 \text{ m}$ $\eta = 0.2$	$x: 0.17 \text{ m}$ $\eta = 34.4$	$x: 0.17 \text{ m}$ $\eta = 59.7$	N.A. ⁽⁵⁾	$x: 0 \text{ m}$ $\eta = 8.4$	PASSA $\eta = 59.7$
N48/N46	$x: 0.148 \text{ m}$ $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$x: 0 \text{ m}$ $\eta = 5.5$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 0 \text{ m}$ $\eta = 1.7$	$x: 0 \text{ m}$ $\eta = 55.4$	$x: 0 \text{ m}$ $\eta = 5.9$	$x: 0 \text{ m}$ $\eta = 0.5$	$x: 0 \text{ m}$ $\eta < 0.1$	$x: 0 \text{ m}$ $\eta = 31.0$	N.A. ⁽³⁾	$x: 0 \text{ m}$ $\eta = 62.6$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 62.6$
N46/N41	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$x: 0.212 \text{ m}$ $\eta = 4.4$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 0.383 \text{ m}$ $\eta = 4.3$	$x: 0.04 \text{ m}$ $\eta = 12.1$	$x: 0.212 \text{ m}$ $\eta = 2.4$	$x: 0.212 \text{ m}$ $\eta = 1.8$	$x: 0.383 \text{ m}$ $\eta = 0.2$	$x: 0.04 \text{ m}$ $\eta = 1.5$	N.A. ⁽³⁾	$x: 0.04 \text{ m}$ $\eta = 17.5$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 17.5$
N41/N24	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$x: 0 \text{ m}$ $\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 0.8$	$x: 0.1 \text{ m}$ $\eta = 1.7$	$x: 0 \text{ m}$ $\eta = 5.5$	$x: 0 \text{ m}$ $\eta = 3.8$	$x: 0.05 \text{ m}$ $\eta = 3.7$	$x: 0.1 \text{ m}$ $\eta = 0.2$	$x: 0 \text{ m}$ $\eta = 0.4$	$x: 0.1 \text{ m}$ $\eta = 6.9$	$x: 0.025 \text{ m}$ $\eta = 1.2$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 6.9$
N22/N40	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta < 0.1$	$\eta = 4.0$	$x: 1.6 \text{ m}$ $\eta = 11.3$	$x: 0 \text{ m}$ $\eta = 56.4$	$x: 0 \text{ m}$ $\eta = 4.0$	$\eta = 2.0$	$x: 1.6 \text{ m}$ $\eta = 0.9$	$x: 0 \text{ m}$ $\eta = 32.0$	$x: 0 \text{ m}$ $\eta = 68.6$	$x: 0 \text{ m}$ $\eta = 43.6$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 68.6$
N21/N39	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta = 0.2$	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 3.7$	$x: 1.6 \text{ m}$ $\eta = 31.9$	$x: 1.6 \text{ m}$ $\eta = 3.1$	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 10.3$	$x: 1.6 \text{ m}$ $\eta = 7.9$	$x: 1.6 \text{ m}$ $\eta = 35.8$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 35.8$
N20/N38	$x: 0.4 \text{ m}$ $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 4.6$	$x: 1.6 \text{ m}$ $\eta = 40.0$	$x: 1.6 \text{ m}$ $\eta = 3.4$	$\eta = 0.3$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 16.1$	$x: 1.6 \text{ m}$ $\eta = 44.7$	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 44.7$
N19/N37	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.3$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 1.6 \text{ m}$ $\eta = 3.9$	$x: 1.6 \text{ m}$ $\eta = 33.7$	$x: 1.6 \text{ m}$ $\eta = 3.2$	$\eta = 0.2$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 11.4$	N.A. ⁽³⁾	$x: 1.6 \text{ m}$ $\eta = 37.9$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 37.9$
N18/N36	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.2$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 0 \text{ m}$ $\eta = 11.1$	$x: 0 \text{ m}$ $\eta = 53.2$	$x: 0 \text{ m}$ $\eta = 3.8$	$\eta = 1.6$	$x: 0 \text{ m}$ $\eta = 0.8$	$x: 0 \text{ m}$ $\eta = 28.4$	N.A. ⁽³⁾	$x: 0 \text{ m}$ $\eta = 61.7$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 61.7$
N17/N35	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$\eta = 0.9$	$x: 0 \text{ m}$ $\eta = 3.3$	$x: 0 \text{ m}$ $\eta = 29.1$	$x: 0 \text{ m}$ $\eta = 3.0$	$\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 8.6$	$x: 0 \text{ m}$ $\eta = 33.3$	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 33.3$
N16/N34	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta < 0.1$	$\eta < 0.1$	$x: 1.6 \text{ m}$ $\eta = 3.3$	$x: 1.6 \text{ m}$ $\eta = 29.0$	$x: 1.6 \text{ m}$ $\eta = 3.0$	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 8.5$	$x: 1.6 \text{ m}$ $\eta = 32.0$	$x: 1.6 \text{ m}$ $\eta = 32.4$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 32.4$
N15/N33	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.7$	$x: 1.6 \text{ m}$ $\eta = 3.5$	$x: 1.6 \text{ m}$ $\eta = 30.3$	$x: 1.6 \text{ m}$ $\eta = 3.1$	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 9.2$	$x: 1.6 \text{ m}$ $\eta = 34.1$	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 34.1$
N5/N6	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.4$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 1.6 \text{ m}$ $\eta = 6.4$	$x: 0 \text{ m}$ $\eta = 54.0$	$x: 0 \text{ m}$ $\eta = 3.9$	$\eta = 0.8$	$x: 1.6 \text{ m}$ $\eta = 0.3$	$x: 0 \text{ m}$ $\eta = 29.3$	N.A. ⁽³⁾	$x: 0 \text{ m}$ $\eta = 55.4$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 55.4$
N14/N25	$x: 0.2 \text{ m}$ $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta < 0.1$	$\eta < 0.1$	$x: 0 \text{ m}$ $\eta = 3.5$	$x: 0 \text{ m}$ $\eta = 30.5$	$x: 0 \text{ m}$ $\eta = 3.1$	$\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 9.4$	$x: 1.6 \text{ m}$ $\eta = 30.7$	$x: 0 \text{ m}$ $\eta = 34.0$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 34.0$
N13/N26	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 1.6 \text{ m}$ $\eta = 3.2$	$x: 1.6 \text{ m}$ $\eta = 27.7$	$x: 1.6 \text{ m}$ $\eta = 3.0$	$\eta < 0.1$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 7.7$	N.A. ⁽³⁾	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 27.7$
N12/N27	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{t, sd} = 0.00$ N.A. ⁽⁴⁾	$\eta = 0.2$	$x: 0 \text{ m}$ $\eta = 3.3$	$x: 0 \text{ m}$ $\eta = 28.6$	$x: 0 \text{ m}$ $\eta = 3.0$	$\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 0.1$	$x: 0 \text{ m}$ $\eta = 8.3$	$x: 0 \text{ m}$ $\eta = 32.1$	N.A. ⁽⁵⁾	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 32.1$
N11/N28	$x: 0.6 \text{ m}$ $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta < 0.1$	$\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 12.0$	$x: 0 \text{ m}$ $\eta = 50.7$	$x: 0 \text{ m}$ $\eta = 3.7$	$\eta = 2.0$	$x: 1.6 \text{ m}$ $\eta = 1.0$	$x: 0 \text{ m}$ $\eta = 25.9$	$x: 0 \text{ m}$ $\eta = 58.3$	$x: 1.6 \text{ m}$ $\eta = 31.2$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 58.3$
N10/N29	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.1$	$N_{c, sd} = 0.00$ N.A. ⁽⁷⁾	$x: 1.6 \text{ m}$ $\eta = 4.5$	$x: 1.6 \text{ m}$ $\eta = 39.2$	$x: 1.6 \text{ m}$ $\eta = 3.4$	$\eta = 0.3$	$x: 1.6 \text{ m}$ $\eta = 0.1$	$x: 1.6 \text{ m}$ $\eta = 15.5$	N.A. ⁽³⁾	$x: 1.6 \text{ m}$ $\eta = 43.8$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 43.8$
N9/N30	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta < 0.1$	$\eta < 0.1$	$x: 1.6 \text{ m}$ $\eta = 5.5$	$x: 1.6 \text{ m}$ $\eta = 47.6$	$x: 1.6 \text{ m}$ $\eta = 3.7$	$\eta = 0.5$	$x: 1.6 \text{ m}$ $\eta = 0.2$	$x: 1.6 \text{ m}$ $\eta = 22.8$	$x: 1.6 \text{ m}$ $\eta = 30.0$	$x: 1.6 \text{ m}$ $\eta = 53.1$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 53.1$
N8/N31	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 1.3$	$x: 1.6 \text{ m}$ $\eta = 4.8$	$x: 1.6 \text{ m}$ $\eta = 42.0$	$x: 1.6 \text{ m}$ $\eta = 3.5$	$\eta = 0.4$	$x: 1.6 \text{ m}$ $\eta = 0.2$	$x: 1.6 \text{ m}$ $\eta = 17.7$	$x: 1.6 \text{ m}$ $\eta = 48.0$	$x: 0 \text{ m}$ $\eta = 29.8$	$M_{t, sd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 48.0$



Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N_t	N_c	M_x	M_y	V_x	V_y	$M_x V_y$	$M_y V_x$	$N_c M_x M_y$	$N_t M_x M_y$	M_t	
N7/N32	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.8$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 15.9$	x: 0 m $\eta = 44.5$	x: 0 m $\eta = 3.4$	$\eta = 1.6$	x: 0 m $\eta = 1.6$	x: 0 m $\eta = 19.9$	N.A. ⁽³⁾	x: 0 m $\eta = 57.6$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 57.6$
N44/N33	x: 0.107 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.167 m $\eta = 0.9$	x: 0.048 m $\eta = 0.2$	x: 0.048 m $\eta = 4.7$	x: 0.167 m $\eta = 11.4$	$\eta = 3.4$	x: 0.048 m $\eta = 5.0$	x: 0.048 m $\eta = 0.5$	x: 0.167 m $\eta = 1.4$	x: 0.167 m $\eta = 13.3$	x: 0.167 m $\eta = 14.5$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 14.5$
N33/N34	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 1.0$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 3.9$	x: 0.333 m $\eta = 13.2$	$\eta = 2.9$	x: 0 m $\eta = 4.1$	x: 0.333 m $\eta = 0.3$	x: 0.333 m $\eta = 1.8$	N.A. ⁽³⁾	x: 0.333 m $\eta = 17.6$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 17.6$
N34/N35	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 1.2$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 8.6$	x: 0.333 m $\eta = 17.1$	$\eta = 3.0$	x: 0 m $\eta = 3.2$	x: 0.333 m $\eta = 0.8$	x: 0.333 m $\eta = 3.0$	N.A. ⁽³⁾	x: 0.333 m $\eta = 25.9$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 25.9$
N35/N36	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 1.3$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 11.9$	x: 0.333 m $\eta = 15.8$	$\eta = 2.4$	x: 0 m $\eta = 2.3$	x: 0.333 m $\eta = 1.5$	x: 0.333 m $\eta = 2.5$	N.A. ⁽³⁾	x: 0.333 m $\eta = 27.6$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 27.6$
N36/N37	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 2.9$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.167 m $\eta = 9.9$	x: 0 m $\eta = 31.9$	$\eta = 3.5$	x: 0 m $\eta = 1.2$	x: 0.333 m $\eta = 1.0$	x: 0 m $\eta = 10.3$	N.A. ⁽³⁾	x: 0 m $\eta = 42.5$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 42.5$
N37/N38	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 3.1$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 9.9$	x: 0 m $\eta = 26.9$	$\eta = 4.8$	x: 0.333 m $\eta = 0.9$	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 7.4$	N.A. ⁽³⁾	x: 0 m $\eta = 38.9$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 38.9$
N38/N39	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 3.4$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 8.7$	x: 0.333 m $\eta = 25.3$	$\eta = 4.7$	x: 0.333 m $\eta = 1.8$	x: 0 m $\eta = 0.8$	x: 0.333 m $\eta = 6.6$	N.A. ⁽³⁾	x: 0.333 m $\eta = 35.8$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 35.8$
N39/N40	x: 0.167 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 3.6$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 7.1$	x: 0.333 m $\eta = 48.6$	$\eta = 5.5$	x: 0.333 m $\eta = 2.7$	x: 0 m $\eta = 0.5$	x: 0.333 m $\eta = 23.9$	N.A. ⁽³⁾	x: 0.333 m $\eta = 56.3$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 56.3$
N24/N1	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.428 m $\eta = 2.3$	x: 0.096 m $\eta = 1.7$	x: 0 m $\eta = 7.8$	x: 0 m $\eta = 2.4$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 2.5$	x: 0 m $\eta = 0.7$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 10.9$	x: 0.76 m $\eta = 8.6$	x: 0.048 m $\eta = 3.3$	PASSA $\eta = 10.9$
N1/N2	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.04 m $\eta = 2.2$	x: 0.4 m $\eta = 1.0$	x: 0.76 m $\eta = 9.0$	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	x: 0.4 m $\eta = 0.2$	x: 0.76 m $\eta = 2.0$	x: 0.76 m $\eta = 0.9$	N.A. ⁽²⁾	x: 0.76 m $\eta = 10.4$	x: 0.04 m $\eta = 9.0$	x: 0.4 m $\eta = 1.0$	PASSA $\eta = 10.4$
N45/N47	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.645 m $\eta = 3.9$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.645 m $\eta = 5.6$	x: 0 m $\eta = 5.2$	x: 0 m $\eta = 3.3$	x: 0 m $\eta = 2.5$	x: 0.645 m $\eta = 0.3$	x: 0 m $\eta = 0.4$	N.A. ⁽³⁾	x: 0.76 m $\eta = 9.6$	x: 0.382 m $\eta = 1.6$	PASSA $\eta = 9.6$
N47/N1	$(b_w/t) \leq 500$ Passa	x: 0.4 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.04 m $\eta = 3.3$	x: 0.4 m $\eta = 0.1$	x: 0.04 m $\eta = 5.5$	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	x: 0.04 m $\eta = 0.3$	x: 0.76 m $\eta = 0.9$	x: 0.04 m $\eta = 0.3$	N.A. ⁽²⁾	N.A. ⁽³⁾	x: 0.04 m $\eta = 9.6$	x: 0.4 m $\eta = 2.2$	PASSA $\eta = 9.6$
N46/N47	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.446 m $\eta = 3.7$	x: 0 m $\eta = 1.1$	x: 0.76 m $\eta = 5.9$	x: 0 m $\eta = 3.3$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 2.9$	x: 0.76 m $\eta = 0.4$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 5.8$	x: 0.76 m $\eta = 10.4$	x: 0 m $\eta = 1.8$	PASSA $\eta = 10.4$
N47/N4	$(b_w/t) \leq 500$ Passa	x: 0.4 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.04 m $\eta = 3.6$	x: 0.4 m $\eta < 0.1$	x: 0.04 m $\eta = 5.9$	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	x: 0.04 m $\eta = 0.4$	x: 0.76 m $\eta = 0.9$	x: 0.04 m $\eta = 0.3$	N.A. ⁽²⁾	N.A. ⁽³⁾	x: 0.04 m $\eta = 10.7$	x: 0.4 m $\eta = 2.3$	PASSA $\eta = 10.7$
N41/N15	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 6.5$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.277 m $\eta = 1.7$	x: 0.333 m $\eta = 9.9$	$\eta = 3.1$	x: 0.277 m $\eta = 5.9$	x: 0.277 m $\eta = 0.4$	x: 0.333 m $\eta = 1.0$	N.A. ⁽³⁾	x: 0.333 m $\eta = 16.2$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 16.2$
N15/N16	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 6.7$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 7.6$	x: 0 m $\eta = 9.6$	$\eta = 2.1$	x: 0 m $\eta = 5.0$	x: 0.333 m $\eta = 0.8$	x: 0 m $\eta = 1.0$	N.A. ⁽³⁾	x: 0.333 m $\eta = 22.6$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 22.6$
N16/N17	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 6.9$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 13.7$	x: 0 m $\eta = 11.7$	$\eta = 2.1$	x: 0 m $\eta = 4.1$	x: 0.333 m $\eta = 2.0$	x: 0 m $\eta = 1.4$	N.A. ⁽³⁾	x: 0.333 m $\eta = 27.8$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 27.8$
N17/N18	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 7.1$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 18.4$	x: 0.333 m $\eta = 21.3$	$\eta = 2.1$	x: 0 m $\eta = 3.2$	x: 0.333 m $\eta = 3.5$	x: 0.333 m $\eta = 4.5$	N.A. ⁽³⁾	x: 0 m $\eta = 38.8$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 38.8$
N18/N19	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 8.1$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 15.5$	x: 0 m $\eta = 36.1$	$\eta = 3.2$	x: 0 m $\eta = 0.8$	x: 0.333 m $\eta = 2.4$	x: 0 m $\eta = 13.1$	N.A. ⁽³⁾	x: 0 m $\eta = 50.6$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 50.6$
N19/N20	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 8.2$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 15.5$	x: 0 m $\eta = 12.6$	$\eta = 2.2$	x: 0.333 m $\eta = 0.6$	x: 0 m $\eta = 2.4$	x: 0 m $\eta = 1.6$	N.A. ⁽³⁾	x: 0 m $\eta = 31.9$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 31.9$
N20/N21	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 8.3$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 14.6$	x: 0.333 m $\eta = 15.3$	$\eta = 2.2$	x: 0.333 m $\eta = 1.5$	x: 0 m $\eta = 2.2$	x: 0.333 m $\eta = 2.4$	N.A. ⁽³⁾	x: 0 m $\eta = 31.2$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 31.2$
N21/N22	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 8.5$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 12.4$	x: 0.333 m $\eta = 32.4$	$\eta = 3.2$	x: 0.333 m $\eta = 2.4$	x: 0 m $\eta = 1.6$	x: 0.333 m $\eta = 10.6$	N.A. ⁽³⁾	x: 0 m $\eta = 43.2$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 43.2$
N43/N2	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.091 m $\eta = 0.4$	x: 0 m $\eta = 5.8$	x: 0.091 m $\eta = 9.2$	x: 0 m $\eta = 18.7$	$\eta = 7.1$	$\eta = 5.5$	x: 0.091 m $\eta = 1.1$	x: 0 m $\eta = 3.8$	x: 0 m $\eta = 27.9$	x: 0.091 m $\eta = 5.8$	$\eta = 5.8$	PASSA $\eta = 27.9$
N2/N44	$(b_w/t) \leq 500$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.091 m $\eta = 0.3$	x: 0 m $\eta = 3.7$	x: 0 m $\eta = 31.2$	x: 0 m $\eta = 6.5$	$\eta = 4.4$	$\eta = 7.6$	x: 0 m $\eta = 10.3$	x: 0 m $\eta = 0.6$	x: 0 m $\eta = 39.5$	x: 0 m $\eta = 7.8$	$\eta = 3.8$	PASSA $\eta = 39.5$
N22/N110	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 5.6$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.14 m $\eta = 0.8$	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	$\eta = 5.6$	x: 0.15 m $\eta = 18.1$	x: 0.14 m $\eta = 3.3$	N.A. ⁽²⁾	N.A. ⁽³⁾	x: 0.14 m $\eta = 7.8$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 18.1$



Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N_t	N_c	M_x	M_y	V_x	V_y	$M_x V_y$	$M_y V_x$	$N_c M_x M_y$	$N_t M_x M_y$	M_t	
N40/N111	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$N_t = 2.8$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	$M_{Sd} = 0.00$ N.A. ⁽¹⁾	$\eta = 4.3$	x: 0.15 m $\eta = 8.9$	N.A. ⁽²⁾	N.A. ⁽²⁾	N.A. ⁽³⁾	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 8.9$
N113/N5	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 13.9$	x: 0.333 m $\eta = 9.9$	x: 0.333 m $\eta = 7.2$	$\eta = 0.8$	x: 0 m $\eta = 6.7$	x: 0.333 m $\eta = 1.4$	x: 0.333 m $\eta = 0.5$	x: 0.333 m $\eta = 29.9$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 29.9$
N5/N14	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 9.1$	x: 0.333 m $\eta = 7.5$	x: 0.333 m $\eta = 20.1$	$\eta = 2.3$	x: 0 m $\eta = 4.1$	x: 0.333 m $\eta = 0.7$	x: 0.333 m $\eta = 4.1$	x: 0.333 m $\eta = 35.9$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 35.9$
N14/N13	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 8.8$	x: 0.333 m $\eta = 12.2$	x: 0 m $\eta = 10.2$	$\eta = 2.2$	x: 0 m $\eta = 3.2$	x: 0.333 m $\eta = 1.6$	x: 0 m $\eta = 1.1$	x: 0.333 m $\eta = 30.2$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 30.2$
N13/N12	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 8.4$	x: 0.333 m $\eta = 15.6$	x: 0 m $\eta = 10.0$	$\eta = 2.2$	x: 0 m $\eta = 2.3$	x: 0.333 m $\eta = 2.5$	x: 0 m $\eta = 1.1$	x: 0.333 m $\eta = 30.8$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 30.8$
N12/N11	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 8.1$	x: 0.333 m $\eta = 17.6$	x: 0 m $\eta = 18.4$	$\eta = 2.1$	x: 0 m $\eta = 1.4$	x: 0.333 m $\eta = 3.1$	x: 0 m $\eta = 3.4$	x: 0 m $\eta = 41.2$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 41.2$
N11/N10	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 7.3$	x: 0 m $\eta = 17.6$	x: 0 m $\eta = 34.9$	$\eta = 3.0$	x: 0.333 m $\eta = 1.8$	x: 0 m $\eta = 3.1$	x: 0 m $\eta = 12.3$	x: 0 m $\eta = 51.2$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 51.2$
N10/N9	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 7.1$	x: 0 m $\eta = 14.9$	x: 0 m $\eta = 17.8$	$\eta = 2.8$	x: 0.333 m $\eta = 2.7$	x: 0 m $\eta = 2.3$	x: 0 m $\eta = 3.3$	x: 0 m $\eta = 30.5$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 30.5$
N9/N8	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 7.1$	x: 0 m $\eta = 11.0$	x: 0.333 m $\eta = 15.5$	$\eta = 2.7$	x: 0.333 m $\eta = 3.6$	x: 0 m $\eta = 1.3$	x: 0.333 m $\eta = 2.5$	x: 0 m $\eta = 26.8$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 26.8$
N8/N7	x: 0.167 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 6.9$	x: 0 m $\eta = 5.7$	x: 0.333 m $\eta = 41.6$	$\eta = 4.3$	x: 0.333 m $\eta = 4.5$	x: 0 m $\eta = 0.5$	x: 0.333 m $\eta = 17.5$	x: 0.333 m $\eta = 44.7$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 44.7$
N7/N42	x: 0.028 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 10.5$	x: 0 m $\eta = 6.7$	x: 0 m $\eta = 51.3$	$\eta = 4.9$	x: 0.056 m $\eta = 8.1$	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 26.5$	x: 0 m $\eta = 59.0$	N.A. ⁽⁵⁾	$\eta = 6.1$	PASSA $\eta = 59.0$
N112/N6	$(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 2.4$	x: 0.333 m $\eta = 5.9$	x: 0.333 m $\eta = 9.1$	$\eta = 1.1$	x: 0 m $\eta = 4.0$	x: 0.333 m $\eta = 0.5$	x: 0.333 m $\eta = 0.8$	x: 0.333 m $\eta = 17.5$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 17.5$
N6/N25	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 0.7$	x: 0.333 m $\eta = 6.4$	x: 0 m $\eta = 28.9$	$\eta = 3.1$	x: 0 m $\eta = 2.2$	x: 0.333 m $\eta = 0.5$	x: 0 m $\eta = 8.5$	x: 0 m $\eta = 32.3$	N.A. ⁽⁵⁾	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 32.3$
N25/N26	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m $\eta < 0.1$	x: 0 m $\eta = 0.4$	x: 0.333 m $\eta = 8.4$	x: 0 m $\eta = 18.2$	$\eta = 3.2$	x: 0 m $\eta = 1.3$	x: 0.333 m $\eta = 0.7$	x: 0 m $\eta = 3.4$	x: 0 m $\eta = 24.0$	x: 0.333 m $\eta = 19.1$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 24.0$
N26/N27	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m $\eta = 0.2$	x: 0 m $\eta = 0.4$	x: 0.333 m $\eta = 9.0$	x: 0.333 m $\eta = 16.4$	$\eta = 3.2$	x: 0 m $\eta = 0.4$	x: 0.333 m $\eta = 0.8$	x: 0.333 m $\eta = 2.8$	x: 0.333 m $\eta = 23.1$	x: 0.333 m $\eta = 20.0$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 23.1$
N27/N28	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m $\eta = 0.4$	x: 0 m $\eta = 0.4$	x: 0 m $\eta = 9.0$	x: 0.333 m $\eta = 22.9$	$\eta = 2.9$	x: 0.333 m $\eta = 1.3$	x: 0 m $\eta = 0.8$	x: 0.333 m $\eta = 5.3$	x: 0.333 m $\eta = 16.6$	x: 0.333 m $\eta = 28.4$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 28.4$
N28/N29	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m $\eta = 0.1$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 11.5$	x: 0 m $\eta = 44.8$	$\eta = 5.1$	x: 0.333 m $\eta = 3.1$	x: 0 m $\eta = 1.4$	x: 0 m $\eta = 20.3$	x: 0 m $\eta = 50.1$	x: 0 m $\eta = 53.8$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 53.8$
N29/N30	x: 0.167 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 0.3$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0 m $\eta = 6.9$	x: 0 m $\eta = 30.2$	$\eta = 5.4$	x: 0.333 m $\eta = 4.0$	x: 0 m $\eta = 0.6$	x: 0 m $\eta = 9.4$	N.A. ⁽³⁾	x: 0 m $\eta = 35.9$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 35.9$
N30/N31	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m $\eta = 0.6$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.333 m $\eta = 6.3$	x: 0.333 m $\eta = 27.5$	$\eta = 5.4$	x: 0.333 m $\eta = 4.9$	x: 0.333 m $\eta = 0.6$	x: 0.333 m $\eta = 7.8$	N.A. ⁽³⁾	x: 0.333 m $\eta = 34.0$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 34.0$
N31/N105	x: 0 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.303 m $\eta = 0.9$	$N_{cSd} = 0.00$ N.A. ⁽⁷⁾	x: 0.303 m $\eta = 14.1$	x: 0.303 m $\eta = 27.6$	$\eta = 4.1$	x: 0.303 m $\eta = 5.8$	x: 0.303 m $\eta = 2.3$	x: 0.303 m $\eta = 7.8$	N.A. ⁽³⁾	x: 0.303 m $\eta = 41.4$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 41.4$
N105/N32	$(b_w/t) \leq 200$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.03 m $\eta = 0.1$	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 14.1$	x: 0 m $\eta = 27.6$	$\eta = 8.4$	x: 0 m $\eta = 12.1$	x: 0 m $\eta = 3.4$	x: 0 m $\eta = 8.3$	x: 0 m $\eta = 42.3$	x: 0 m $\eta = 21.0$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 42.3$
N32/N43	x: 0.118 m $(b_w/t) \leq 90$ Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.118 m $\eta = 0.4$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 12.5$	x: 0 m $\eta = 14.1$	$\eta = 5.1$	x: 0 m $\eta = 11.2$	x: 0 m $\eta = 2.8$	x: 0 m $\eta = 2.2$	x: 0.119 m $\eta = 19.9$	x: 0 m $\eta = 17.9$	$M_{tSd} = 0.00$ N.A. ⁽⁶⁾	PASSA $\eta = 19.9$



Barras	VERIFICAÇÕES (ABNT NBR 14762)												Estado
	b/t	λ	N_t	N_c	M_x	M_y	V_x	V_y	$M_x V_y$	$M_y V_x$	$N_c M_x M_y$	$N_t M_x M_y$	

Notação:
b/t: Valores máximos da relação comprimento-espessura
 λ : Limitação de esbeltez
 N_t : Resistência à tração
 N_c : Resistência à compressão
 M_x : Resistência à flexão eixo X
 M_y : Resistência à flexão eixo Y
 V_x : Resistência ao esforço cortante X
 V_y : Resistência ao esforço cortante Y
 $M_x V_y$: Resistência ao momento fletor X e esforço cortante Y combinados
 $M_y V_x$: Resistência ao momento fletor Y e esforço cortante X combinados
 $N_c M_x M_y$: Resistência à flexo-compressão
 $N_t M_x M_y$: Resistência à flexo-tração
 M_t : Resistência à torção
x: Distância à origem da barra
 η : Coeficiente de aproveitamento (%)
N.A.: Não aplicável

Verificações desnecessárias para o tipo de perfil (N.A.):
⁽¹⁾ A verificação não será executada, já que não existe momento fletor.
⁽²⁾ Não há interação entre o momento fletor e o esforço cortante para nenhuma combinação. Assim a verificação não será executada.
⁽³⁾ Não há interação entre o esforço axial de compressão e o momento fletor para nenhuma combinação. Assim a verificação não será executada.
⁽⁴⁾ A verificação não será executada, já que não existe esforço axial de tração.
⁽⁵⁾ Não há interação entre o esforço axial de tração e o momento fletor para nenhuma combinação. Assim a verificação não será executada.
⁽⁶⁾ A verificação não é necessária, já que não existe momento torsor.
⁽⁷⁾ A verificação não será executada, já que não existe esforço axial de compressão.

Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	$N M_x M_y$	T	NMVT	$\sigma \tau f$	

N5/N64	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 5.6$	x: 0.179 m $\eta = 31.3$	x: 0.179 m $\eta = 52.3$	$\eta = 21.6$	$\eta = 1.5$	x: 0.179 m $\eta = 86.4$	$\eta = 10.0$	$\eta < 0.1$	x: 0.179 m $\eta = 88.2$	PASSA $\eta = 88.2$
N64/N63	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 1.8$	x: 0.026 m $\eta = 26.8$	x: 0.169 m $\eta = 10.4$	$\eta = 2.6$	$\eta = 1.7$	x: 0.169 m $\eta = 32.8$	$\eta = 6.2$	$\eta < 0.1$	x: 0.026 m $\eta = 38.4$	PASSA $\eta = 38.4$
N63/N62	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 1.2$	x: 0.026 m $\eta = 20.3$	x: 0.026 m $\eta = 7.3$	$\eta = 1.2$	$\eta = 2.0$	x: 0.026 m $\eta = 28.1$	$\eta = 1.5$	$\eta < 0.1$	x: 0.026 m $\eta = 30.2$	PASSA $\eta = 30.2$
N62/N49	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.6$	x: 0.026 m $\eta = 13.0$	x: 0.169 m $\eta = 12.7$	$\eta = 3.0$	$\eta = 2.2$	x: 0.169 m $\eta = 18.3$	$\eta = 4.3$	$\eta < 0.1$	x: 0.026 m $\eta = 20.0$	PASSA $\eta = 20.0$
N6/N88	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.8$	x: 0.179 m $\eta = 2.5$	x: 0.179 m $\eta = 27.5$	x: 0.179 m $\eta = 17.4$	$\eta = 7.0$	$\eta = 1.5$	x: 0.179 m $\eta = 39.2$	$\eta = 9.6$	$\eta < 0.1$	x: 0.179 m $\eta = 41.1$	PASSA $\eta = 41.1$
N88/N87	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.6$	x: 0.026 m $\eta = 1.0$	x: 0.026 m $\eta = 23.8$	x: 0.026 m $\eta = 7.7$	$\eta = 1.4$	$\eta = 1.7$	x: 0.026 m $\eta = 31.4$	$\eta = 5.7$	$\eta < 0.1$	x: 0.026 m $\eta = 34.0$	PASSA $\eta = 34.0$
N87/N86	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.6$	x: 0.026 m $\eta = 1.1$	x: 0.026 m $\eta = 18.0$	x: 0.026 m $\eta = 5.2$	$\eta = 1.8$	$\eta = 2.0$	x: 0.026 m $\eta = 23.3$	$\eta = 1.2$	$\eta < 0.1$	x: 0.026 m $\eta = 25.8$	PASSA $\eta = 25.8$
N86/N50	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.5$	x: 0.026 m $\eta = 1.4$	x: 0.026 m $\eta = 11.7$	x: 0.169 m $\eta = 10.3$	$\eta = 2.6$	$\eta = 2.2$	x: 0.026 m $\eta = 17.4$	$\eta = 4.1$	$\eta < 0.1$	x: 0.026 m $\eta = 18.3$	PASSA $\eta = 18.3$
N7/N69	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 2.8$	x: 0.179 m $\eta = 0.9$	x: 0.179 m $\eta = 66.0$	x: 0.179 m $\eta = 45.3$	$\eta = 20.1$	$\eta = 7.1$	x: 0.179 m $\eta = 99.3$	$\eta = 19.8$	$\eta < 0.1$	x: 0.179 m $\eta = 98.5$	PASSA $\eta = 99.3$
N69/N68	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.5$	x: 0.026 m $\eta = 2.5$	x: 0.026 m $\eta = 48.7$	x: 0.169 m $\eta = 7.8$	$\eta = 4.4$	$\eta = 6.6$	x: 0.026 m $\eta = 54.3$	$\eta = 14.6$	$\eta < 0.1$	x: 0.026 m $\eta = 67.8$	PASSA $\eta = 67.8$
N68/N67	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta < 0.1$	x: 0.026 m $\eta = 2.7$	x: 0.026 m $\eta = 30.4$	x: 0.026 m $\eta = 3.3$	$\eta = 1.4$	$\eta = 6.2$	x: 0.026 m $\eta = 33.3$	$\eta = 8.5$	$\eta < 0.1$	x: 0.026 m $\eta = 43.0$	PASSA $\eta = 43.0$
N67/N51	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.3$	x: 0.026 m $\eta = 14.7$	x: 0.026 m $\eta = 7.0$	$\eta = 2.2$	$\eta = 5.9$	x: 0.026 m $\eta = 20.9$	$\eta = 0.7$	$\eta < 0.1$	x: 0.026 m $\eta = 22.9$	PASSA $\eta = 22.9$
N44/N107	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 3.1$	x: 0 m $\eta = 7.3$	x: 0 m $\eta = 4.3$	$\eta = 1.6$	$\eta = 1.3$	x: 0 m $\eta = 13.0$	$\eta = 9.0$	$\eta < 0.1$	x: 0 m $\eta = 15.1$	PASSA $\eta = 15.1$
N107/N97	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.5$	x: 0 m $\eta = 3.6$	x: 0 m $\eta = 7.1$	$\eta = 1.2$	$\eta = 1.3$	x: 0 m $\eta = 11.9$	$\eta = 5.4$	$\eta < 0.1$	x: 0 m $\eta = 13.2$	PASSA $\eta = 13.2$
N97/N108	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.6$	x: 0 m $\eta = 4.6$	x: 0.014 m $\eta = 1.8$	$\eta = 1.0$	$\eta = 1.9$	x: 0 m $\eta = 7.0$	$\eta = 8.7$	$\eta < 0.1$	x: 0 m $\eta = 12.5$	PASSA $\eta = 12.5$
N108/N96	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.6$	x: 0 m $\eta = 3.5$	x: 0.181 m $\eta = 4.7$	$\eta = 0.9$	$\eta = 1.6$	x: 0 m $\eta = 8.5$	$\eta = 3.7$	$\eta < 0.1$	x: 0 m $\eta = 9.5$	PASSA $\eta = 9.5$
N96/N109	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.7$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 3.0$	$\eta = 1.0$	$\eta = 2.9$	x: 0 m $\eta = 6.1$	$\eta = 9.3$	$\eta < 0.1$	x: 0 m $\eta = 12.7$	PASSA $\eta = 12.7$
N109/N95	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.7$	x: 0.181 m $\eta = 8.3$	x: 0.181 m $\eta = 17.5$	$\eta = 3.6$	$\eta = 2.4$	x: 0.181 m $\eta = 25.3$	$\eta = 2.2$	$\eta < 0.1$	x: 0.181 m $\eta = 27.1$	PASSA $\eta = 27.1$
N95/N106	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 3.2$	x: 0.014 m $\eta = 7.7$	x: 0.014 m $\eta = 13.6$	$\eta = 4.2$	$\eta = 5.7$	x: 0.014 m $\eta = 19.0$	$\eta = 9.7$	$\eta < 0.1$	x: 0.014 m $\eta = 22.6$	PASSA $\eta = 22.6$
N106/N53	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.4$	x: 0.181 m $\eta = 9.7$	x: 0 m $\eta = 20.7$	$\eta = 2.6$	$\eta = 2.9$	x: 0 m $\eta = 22.6$	$\eta = 12.8$	$\eta < 0.1$	x: 0 m $\eta = 30.6$	PASSA $\eta = 30.6$
N24/N78	$\lambda \leq 200.0$ Passa	x: 0.379 m $\eta = 0.3$	x: 0.15 m $\eta = 3.0$	x: 0.15 m $\eta = 14.2$	x: 0.15 m $\eta = 34.0$	$\eta = 1.9$	$\eta = 3.1$	x: 0.15 m $\eta = 49.1$	$\eta = 6.0$	$\eta < 0.1$	x: 0.15 m $\eta = 52.1$	PASSA $\eta = 52.1$
N78/N77	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 2.9$	x: 0.026 m $\eta = 6.2$	x: 0.026 m $\eta = 26.3$	$\eta = 2.5$	$\eta = 3.2$	x: 0.026 m $\eta = 33.7$	$\eta = 4.0$	$\eta < 0.1$	x: 0.026 m $\eta = 39.1$	PASSA $\eta = 39.1$
N77/N76	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 2.8$	x: 0.169 m $\eta = 4.3$	x: 0.026 m $\eta = 20.3$	$\eta = 3.3$	$\eta = 2.4$	x: 0.026 m $\eta = 24.1$	$\eta = 2.5$	$\eta < 0.1$	x: 0.026 m $\eta = 29.8$	PASSA $\eta = 29.8$
N76/N54	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.3$	x: 0.169 m $\eta = 12.0$	x: 0.026 m $\eta = 11.2$	$\eta = 4.2$	$\eta = 3.4$	x: 0.026 m $\eta = 16.0$	$\eta = 3.2$	$\eta < 0.1$	x: 0.026 m $\eta = 17.8$	PASSA $\eta = 17.8$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	$NM_x M_y$	T	NMVT	$\sigma \tau f$	
N40/N94	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.8$	x: 0.179 m $\eta = 1.0$	x: 0.179 m $\eta = 18.2$	x: 0.179 m $\eta = 34.0$	$\eta = 3.8$	$\eta = 6.9$	x: 0.179 m $\eta = 44.1$	$\eta = 19.8$	$\eta < 0.1$	x: 0.179 m $\eta = 49.2$	PASSA $\eta = 49.2$
N94/N93	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 1.1$	x: 0.169 m $\eta = 1.6$	x: 0.026 m $\eta = 24.2$	$\eta = 3.5$	$\eta = 0.9$	x: 0.026 m $\eta = 25.5$	$\eta = 15.9$	$\eta < 0.1$	x: 0.026 m $\eta = 34.3$	PASSA $\eta = 34.3$
N93/N92	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 0.9$	x: 0.169 m $\eta = 1.9$	x: 0.026 m $\eta = 12.9$	$\eta = 3.1$	$\eta = 0.7$	x: 0.026 m $\eta = 14.5$	$\eta = 12.8$	$\eta < 0.1$	x: 0.026 m $\eta = 21.0$	PASSA $\eta = 21.0$
N92/N55	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 0.4$	x: 0.169 m $\eta = 11.3$	x: 0.169 m $\eta = 6.0$	$\eta = 2.8$	$\eta = 3.3$	x: 0.169 m $\eta = 16.9$	$\eta = 10.9$	$\eta < 0.1$	x: 0.169 m $\eta = 20.8$	PASSA $\eta = 20.8$
N18/N81	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 3.0$	x: 0.179 m $\eta = 19.3$	x: 0.179 m $\eta = 50.5$	$\eta = 5.4$	$\eta = 8.7$	x: 0.179 m $\eta = 71.3$	$\eta = 24.7$	x: 0.179 m $\eta = 62.3$	x: 0.179 m $\eta = 76.4$	PASSA $\eta = 76.4$
N81/N80	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 1.8$	x: 0.026 m $\eta = 4.6$	x: 0.026 m $\eta = 38.7$	$\eta = 5.3$	$\eta = 1.5$	x: 0.026 m $\eta = 41.8$	$\eta = 16.6$	$\eta < 0.1$	x: 0.026 m $\eta = 54.3$	PASSA $\eta = 54.3$
N80/N79	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.8$	x: 0.169 m $\eta = 3.2$	x: 0.026 m $\eta = 24.8$	$\eta = 5.1$	$\eta = 1.6$	x: 0.026 m $\eta = 27.8$	$\eta = 9.5$	$\eta < 0.1$	x: 0.026 m $\eta = 35.5$	PASSA $\eta = 35.5$
N79/N56	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.4$	x: 0.169 m $\eta = 6.7$	x: 0.026 m $\eta = 11.9$	$\eta = 4.8$	$\eta = 3.2$	x: 0.026 m $\eta = 16.0$	$\eta = 2.9$	$\eta < 0.1$	x: 0.026 m $\eta = 19.0$	PASSA $\eta = 19.0$
N36/N100	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 3.0$	x: 0.179 m $\eta = 16.5$	x: 0.179 m $\eta = 33.3$	$\eta = 1.9$	$\eta = 7.2$	x: 0.179 m $\eta = 48.9$	$\eta = 8.8$	$\eta < 0.1$	x: 0.179 m $\eta = 50.3$	PASSA $\eta = 50.3$
N100/N99	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.1$	x: 0.169 m $\eta = 3.6$	x: 0.026 m $\eta = 29.3$	$\eta = 2.4$	$\eta = 1.5$	x: 0.026 m $\eta = 31.9$	$\eta = 5.3$	$\eta < 0.1$	x: 0.026 m $\eta = 40.9$	PASSA $\eta = 40.9$
N99/N98	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.0$	x: 0.169 m $\eta = 2.8$	x: 0.026 m $\eta = 22.5$	$\eta = 3.2$	$\eta = 0.8$	x: 0.026 m $\eta = 23.7$	$\eta = 2.4$	$\eta < 0.1$	x: 0.026 m $\eta = 31.9$	PASSA $\eta = 31.9$
N98/N57	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.0$	x: 0.169 m $\eta = 2.7$	x: 0.026 m $\eta = 12.3$	$\eta = 4.1$	$\eta = 0.7$	x: 0.027 m $\eta = 14.7$	$\eta = 0.7$	$\eta < 0.1$	x: 0.026 m $\eta = 18.5$	PASSA $\eta = 18.5$
N52/N58	$\lambda \leq 200.0$ Passa	$\eta = 1.7$	$\eta = 2.4$	x: 0 m $\eta = 34.2$	x: 0 m $\eta = 43.2$	x: 0 m $\eta = 5.1$	x: 0 m $\eta = 5.4$	x: 0 m $\eta = 77.4$	$\eta = 5.8$	$\eta < 0.1$	x: 0 m $\eta = 74.5$	PASSA $\eta = 77.4$
N52/N59	$\lambda \leq 200.0$ Passa	$\eta = 1.1$	$\eta = 3.8$	x: 0 m $\eta = 42.2$	x: 0 m $\eta = 46.1$	x: 0 m $\eta = 5.1$	x: 0 m $\eta = 5.9$	x: 0 m $\eta = 88.8$	$\eta = 9.1$	$\eta < 0.1$	x: 0 m $\eta = 85.1$	PASSA $\eta = 88.8$
N11/N102	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.4$	x: 0.179 m $\eta = 2.0$	x: 0.179 m $\eta = 48.1$	x: 0.179 m $\eta = 5.0$	$\eta = 1.0$	$\eta = 4.1$	x: 0.179 m $\eta = 51.8$	$\eta = 25.1$	x: 0.179 m $\eta = 57.4$	x: 0.179 m $\eta = 66.7$	PASSA $\eta = 66.7$
N102/N103	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 2.0$	x: 0.026 m $\eta = 39.0$	x: 0.026 m $\eta = 4.2$	$\eta = 1.9$	$\eta = 4.4$	x: 0.026 m $\eta = 42.9$	$\eta = 17.5$	$\eta < 0.1$	x: 0.026 m $\eta = 54.6$	PASSA $\eta = 54.6$
N103/N104	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.4$	x: 0.026 m $\eta = 2.0$	x: 0.026 m $\eta = 26.4$	x: 0.026 m $\eta = 3.5$	$\eta = 1.6$	$\eta = 4.7$	x: 0.026 m $\eta = 30.4$	$\eta = 10.4$	$\eta < 0.1$	x: 0.026 m $\eta = 37.6$	PASSA $\eta = 37.6$
N104/N60	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.4$	x: 0.026 m $\eta = 2.0$	x: 0.026 m $\eta = 12.6$	x: 0.169 m $\eta = 3.8$	$\eta = 1.9$	$\eta = 4.9$	x: 0.026 m $\eta = 15.7$	$\eta = 4.4$	$\eta < 0.1$	x: 0.026 m $\eta = 18.9$	PASSA $\eta = 18.9$
N28/N91	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 1.2$	x: 0.179 m $\eta = 1.6$	x: 0.179 m $\eta = 40.8$	x: 0.179 m $\eta = 24.2$	$\eta = 9.3$	$\eta = 4.8$	x: 0.179 m $\eta = 62.9$	$\eta = 21.0$	x: 0.179 m $\eta = 48.3$	x: 0.179 m $\eta = 62.1$	PASSA $\eta = 62.9$
N91/N90	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 2.2$	x: 0.026 m $\eta = 30.9$	x: 0.026 m $\eta = 6.9$	$\eta = 1.7$	$\eta = 4.8$	x: 0.026 m $\eta = 37.9$	$\eta = 15.7$	$\eta < 0.1$	x: 0.026 m $\eta = 44.3$	PASSA $\eta = 44.3$
N90/N89	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.4$	x: 0.026 m $\eta = 2.1$	x: 0.026 m $\eta = 19.4$	x: 0.026 m $\eta = 6.8$	$\eta = 2.3$	$\eta = 4.8$	x: 0.026 m $\eta = 26.7$	$\eta = 10.7$	$\eta < 0.1$	x: 0.026 m $\eta = 29.2$	PASSA $\eta = 29.2$
N89/N61	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 1.0$	x: 0.026 m $\eta = 2.2$	x: 0.026 m $\eta = 8.8$	x: 0.169 m $\eta = 8.5$	$\eta = 4.9$	$\eta = 5.0$	x: 0.026 m $\eta = 15.9$	$\eta = 4.8$	$\eta < 0.1$	x: 0.026 m $\eta = 16.1$	PASSA $\eta = 16.1$
N69/N70	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 1.3$	x: 0.029 m $\eta = 20.5$	$\eta = 0.5$	$\eta < 0.1$	x: 0.333 m $\eta = 2.8$	x: 0.029 m $\eta = 21.5$	$\eta = 4.1$	$\eta < 0.1$	x: 0.029 m $\eta = 29.0$	PASSA $\eta = 29.0$
N68/N71	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 0.3$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 9.9$	x: 0.029 m $\eta = 2.3$	$\eta = 0.1$	x: 0.333 m $\eta = 1.1$	x: 0.029 m $\eta = 12.4$	$\eta = 5.8$	$\eta < 0.1$	x: 0.029 m $\eta = 14.1$	PASSA $\eta = 14.1$
N67/N72	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 1.7$	x: 0.029 m $\eta = 0.1$	x: 0.029 m $\eta = 12.5$	x: 0.029 m $\eta = 5.7$	$\eta = 0.3$	x: 0.029 m $\eta = 3.1$	x: 0.029 m $\eta = 19.1$	$\eta = 5.7$	$\eta < 0.1$	x: 0.029 m $\eta = 20.3$	PASSA $\eta = 20.3$
N65/N71	$\lambda \leq 200.0$ Passa	$\eta = 0.3$	$\eta = 0.9$	x: 0 m $\eta = 10.3$	x: 0 m $\eta = 4.9$	$\eta = 0.1$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 14.7$	$\eta = 5.8$	$\eta < 0.1$	x: 0 m $\eta = 15.2$	PASSA $\eta = 15.2$
N66/N70	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 2.7$	x: 0 m $\eta = 6.5$	x: 0.365 m $\eta = 1.6$	$\eta < 0.1$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 8.1$	$\eta = 3.7$	$\eta < 0.1$	x: 0 m $\eta = 10.3$	PASSA $\eta = 10.3$
N82/N72	$\lambda \leq 200.0$ Passa	$\eta = 1.9$	$\eta = 0.2$	x: 0 m $\eta = 13.3$	x: 0 m $\eta = 9.3$	$\eta = 0.3$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 23.0$	$\eta = 7.1$	$\eta < 0.1$	x: 0 m $\eta = 23.4$	PASSA $\eta = 23.4$
N82/N83	$\lambda \leq 200.0$ Passa	$\eta = 0.6$	$\eta = 0.2$	x: 0 m $\eta = 6.4$	x: 1.46 m $\eta = 11.4$	$\eta = 0.6$	x: 0 m $\eta = 0.4$	x: 0 m $\eta = 17.4$	$\eta = 5.0$	$\eta < 0.1$	x: 0 m $\eta = 17.2$	PASSA $\eta = 17.4$
N65/N84	$\lambda \leq 200.0$ Passa	$\eta = 0.4$	$\eta = 0.4$	x: 0 m $\eta = 6.6$	x: 1.46 m $\eta = 7.5$	$\eta = 0.4$	x: 0 m $\eta = 0.4$	x: 0 m $\eta = 13.6$	$\eta = 4.2$	$\eta < 0.1$	x: 0 m $\eta = 13.1$	PASSA $\eta = 13.6$
N66/N85	N.A. ⁽²⁾	$\eta = 0.7$	N.A. ⁽³⁾	x: 0 m $\eta = 4.3$	x: 0 m $\eta = 4.9$	$\eta = 0.3$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 9.6$	$\eta = 3.0$	$\eta < 0.1$	x: 0 m $\eta = 9.5$	PASSA $\eta = 9.6$
N83/N76	$\lambda \leq 200.0$ Passa	x: 0.137 m $\eta = 0.5$	x: 0 m $\eta = 0.1$	x: 0.138 m $\eta = 7.2$	x: 0.138 m $\eta = 9.1$	$\eta = 0.6$	x: 0 m $\eta = 1.2$	x: 0.138 m $\eta = 16.3$	$\eta = 10.8$	$\eta < 0.1$	x: 0.138 m $\eta = 17.9$	PASSA $\eta = 17.9$
N84/N77	$\lambda \leq 200.0$ Passa	x: 0.137 m $\eta = 0.4$	x: 0 m $\eta = 0.2$	x: 0.138 m $\eta = 6.0$	x: 0.138 m $\eta = 5.7$	$\eta = 0.4$	x: 0 m $\eta = 0.7$	x: 0.138 m $\eta = 11.8$	$\eta = 7.9$	$\eta < 0.1$	x: 0.138 m $\eta = 12.8$	PASSA $\eta = 12.8$
N85/N78	N.A. ⁽²⁾	x: 0.137 m $\eta = 0.5$	N.A. ⁽³⁾	x: 0.138 m $\eta = 6.9$	x: 0.138 m $\eta = 3.5$	$\eta = 0.3$	x: 0 m $\eta = 1.3$	x: 0.138 m $\eta = 10.7$	$\eta = 5.0$	$\eta < 0.1$	x: 0.138 m $\eta = 11.4$	PASSA $\eta = 11.4$
N97/N100	$\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 0.7$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 6.1$	x: 0.029 m $\eta = 7.4$	$\eta = 0.3$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 13.4$	$\eta = 2.2$	$\eta < 0.1$	x: 0.029 m $\eta = 13.0$	PASSA $\eta = 13.4$
N100/N94	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.5$	x: 0.029 m $\eta = 5.1$	x: 1.305 m $\eta = 2.9$	x: 0.029 m $\eta = 7.9$	$\eta = 0.5$	x: 1.305 m $\eta = 0.2$	x: 0.029 m $\eta = 10.6$	$\eta = 1.2$	$\eta < 0.1$	x: 0.029 m $\eta = 13.1$	PASSA $\eta = 13.1$
N96/N99	$\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 0.8$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 6.2$	x: 0.029 m $\eta = 12.2$	$\eta = 0.6$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 18.0$	$\eta = 3.8$	$\eta < 0.1$	x: 0.029 m $\eta = 18.2$	PASSA $\eta = 18.2$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	$NM_x M_y$	T	NMVT	$\sigma \tau f$	
N99/N93	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.5$	x: 0.029 m $\eta = 0.2$	x: 1.305 m $\eta = 3.0$	x: 0.029 m $\eta = 9.6$	$\eta = 0.5$	x: 1.305 m $\eta = 0.2$	x: 0.029 m $\eta = 11.5$	$\eta = 1.3$	$\eta < 0.1$	x: 0.029 m $\eta = 13.3$	PASSA $\eta = 13.3$
N95/N98	x: 0.029 m $\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 1.6$	x: 0.029 m $\eta < 0.1$	x: 0.029 m $\eta = 3.4$	x: 0.029 m $\eta = 16.6$	$\eta = 0.9$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 20.8$	$\eta = 4.5$	$\eta < 0.1$	x: 0.029 m $\eta = 24.4$	PASSA $\eta = 24.4$
N98/N92	N.A. ⁽²⁾	x: 1.304 m $\eta = 1.5$	N.A. ⁽³⁾	x: 1.305 m $\eta = 18.4$	x: 0.029 m $\eta = 10.9$	$\eta = 0.5$	x: 1.305 m $\eta = 0.2$	x: 0.029 m $\eta = 12.4$	$\eta = 1.3$	$\eta < 0.1$	x: 0.029 m $\eta = 33.9$	PASSA $\eta = 16.2$
N53/N57	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 3.0$	x: 1.138 m $\eta = 14.2$	x: 0.029 m $\eta = 22.9$	x: 0.029 m $\eta = 3.5$	x: 1.138 m $\eta = 3.2$	x: 0.029 m $\eta = 37.5$	$\eta = 4.3$	$\eta < 0.1$	x: 0.029 m $\eta = 37.7$	PASSA $\eta = 37.7$
N57/N55	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 3.8$	x: 0.029 m $\eta = 18.4$	x: 1.305 m $\eta = 17.3$	x: 1.305 m $\eta = 3.7$	x: 0.029 m $\eta = 3.6$	x: 1.305 m $\eta = 35.2$	$\eta = 1.3$	$\eta < 0.1$	x: 1.305 m $\eta = 33.9$	PASSA $\eta = 35.2$
N51/N59	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 1.0$	x: 0.029 m $\eta = 2.9$	x: 0.029 m $\eta = 25.4$	x: 0.029 m $\eta = 20.9$	x: 0.029 m $\eta = 4.1$	x: 0.029 m $\eta = 3.3$	x: 0.029 m $\eta = 46.4$	$\eta = 8.3$	$\eta < 0.1$	x: 0.029 m $\eta = 45.4$	PASSA $\eta = 46.4$
N49/N60	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.4$	x: 0.029 m $\eta = 3.6$	x: 0.029 m $\eta = 20.0$	x: 1.305 m $\eta = 19.3$	x: 1.305 m $\eta = 3.7$	x: 0.029 m $\eta = 3.7$	x: 1.305 m $\eta = 39.4$	$\eta = 3.5$	$\eta < 0.1$	x: 1.305 m $\eta = 37.8$	PASSA $\eta = 39.4$
N60/N51	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.4$	x: 0.029 m $\eta = 3.8$	x: 1.305 m $\eta = 23.4$	x: 1.305 m $\eta = 27.2$	x: 1.305 m $\eta = 3.9$	x: 1.305 m $\eta = 3.9$	x: 1.305 m $\eta = 50.3$	$\eta = 0.7$	$\eta < 0.1$	x: 1.305 m $\eta = 48.4$	PASSA $\eta = 50.3$
N50/N61	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.1$	x: 0.029 m $\eta = 3.2$	x: 1.305 m $\eta = 26.9$	x: 1.305 m $\eta = 18.9$	x: 1.305 m $\eta = 3.7$	x: 1.305 m $\eta = 4.2$	x: 1.305 m $\eta = 46.1$	$\eta = 2.0$	$\eta < 0.1$	x: 1.305 m $\eta = 45.0$	PASSA $\eta = 46.1$
N86/N89	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.0$	x: 0.029 m $\eta = 0.1$	x: 1.305 m $\eta = 8.4$	x: 0.029 m $\eta = 7.8$	$\eta = 0.3$	x: 1.305 m $\eta = 0.6$	x: 0.029 m $\eta = 15.5$	$\eta = 2.0$	$\eta < 0.1$	x: 0.029 m $\eta = 15.2$	PASSA $\eta = 15.5$
N90/N108	$\lambda \leq 200.0$ Passa	x: 1.47 m $\eta = 0.2$	x: 0.029 m $\eta = 1.1$	x: 1.471 m $\eta = 7.7$	x: 0.029 m $\eta = 9.4$	$\eta = 0.4$	x: 1.471 m $\eta = 0.5$	x: 0.029 m $\eta = 16.6$	$\eta = 5.3$	$\eta < 0.1$	x: 0.029 m $\eta = 16.1$	PASSA $\eta = 16.6$
N87/N90	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.3$	x: 0.029 m $\eta = 0.3$	x: 1.305 m $\eta = 6.6$	x: 0.029 m $\eta = 6.7$	$\eta = 0.3$	x: 1.305 m $\eta = 0.5$	x: 0.029 m $\eta = 12.8$	$\eta = 1.7$	$\eta < 0.1$	x: 0.029 m $\eta = 12.3$	PASSA $\eta = 12.8$
N88/N91	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.6$	x: 0.029 m $\eta = 5.8$	x: 1.305 m $\eta = 4.2$	x: 0.029 m $\eta = 6.0$	$\eta = 0.3$	x: 1.305 m $\eta = 0.3$	x: 1.305 m $\eta = 10.7$	$\eta = 1.0$	$\eta < 0.1$	x: 0.029 m $\eta = 11.4$	PASSA $\eta = 11.4$
N78/N81	$\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 0.8$	x: 0.029 m $\eta < 0.1$	x: 1.138 m $\eta = 7.8$	x: 0.029 m $\eta = 9.0$	$\eta = 0.6$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 16.6$	$\eta = 1.4$	$\eta < 0.1$	x: 0.029 m $\eta = 16.3$	PASSA $\eta = 16.6$
N81/N75	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 5.4$	x: 1.305 m $\eta = 4.6$	x: 0.029 m $\eta = 7.6$	$\eta = 0.5$	x: 1.305 m $\eta = 0.3$	x: 1.305 m $\eta = 11.4$	$\eta = 1.2$	$\eta < 0.1$	x: 0.029 m $\eta = 13.1$	PASSA $\eta = 13.1$
N77/N80	$\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 0.2$	x: 0.029 m $\eta = 0.8$	x: 0.029 m $\eta = 7.8$	x: 0.029 m $\eta = 11.1$	$\eta = 0.7$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 18.9$	$\eta = 2.9$	$\eta < 0.1$	x: 0.029 m $\eta = 18.5$	PASSA $\eta = 18.9$
N80/N74	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.1$	x: 0.029 m $\eta = 0.6$	x: 1.305 m $\eta = 5.5$	x: 0.029 m $\eta = 7.4$	$\eta = 0.4$	x: 1.305 m $\eta = 0.4$	x: 0.029 m $\eta = 10.2$	$\eta = 1.6$	$\eta < 0.1$	x: 0.029 m $\eta = 10.7$	PASSA $\eta = 10.7$
N76/N79	$\lambda \leq 200.0$ Passa	x: 1.137 m $\eta = 0.6$	x: 0.029 m $\eta = 1.5$	x: 0.029 m $\eta = 7.6$	x: 0.029 m $\eta = 11.8$	$\eta = 0.7$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 19.7$	$\eta = 3.5$	$\eta < 0.1$	x: 0.029 m $\eta = 19.4$	PASSA $\eta = 19.7$
N79/N73	x: 0.029 m $\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.1$	x: 0.029 m $\eta < 0.1$	x: 1.305 m $\eta = 7.5$	x: 0.029 m $\eta = 7.5$	$\eta = 0.4$	x: 1.305 m $\eta = 0.3$	x: 0.029 m $\eta = 10.2$	$\eta = 1.8$	$\eta < 0.1$	x: 0.029 m $\eta = 11.4$	PASSA $\eta = 11.4$
N58/N54	$\lambda \leq 200.0$ Passa	x: 0.137 m $\eta = 1.4$	x: 0 m $\eta = 0.4$	x: 0.138 m $\eta = 37.2$	x: 0.138 m $\eta = 10.3$	x: 0.138 m $\eta = 3.2$	x: 0.138 m $\eta = 6.9$	x: 0.138 m $\eta = 37.7$	$\eta = 6.4$	$\eta < 0.1$	x: 0.138 m $\eta = 50.5$	PASSA $\eta = 50.5$
N54/N56	$\lambda \leq 200.0$ Passa	x: 1.138 m $\eta = 1.1$	x: 0.029 m $\eta = 1.6$	x: 0.029 m $\eta = 22.0$	x: 1.138 m $\eta = 16.8$	x: 1.138 m $\eta = 3.4$	x: 0.029 m $\eta = 3.7$	x: 0.029 m $\eta = 25.7$	$\eta = 3.4$	$\eta < 0.1$	x: 0.029 m $\eta = 30.6$	PASSA $\eta = 30.6$
N56/N101	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.1$	x: 0.029 m $\eta = 3.4$	x: 0.029 m $\eta = 20.0$	x: 1.305 m $\eta = 17.8$	x: 1.305 m $\eta = 3.6$	x: 0.029 m $\eta = 3.7$	x: 1.305 m $\eta = 35.1$	$\eta = 1.7$	$\eta < 0.1$	x: 1.305 m $\eta = 33.7$	PASSA $\eta = 35.1$
N22/N75	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.9$	x: 0.179 m $\eta = 0.5$	x: 0.179 m $\eta = 25.2$	x: 0.179 m $\eta = 37.3$	$\eta = 3.6$	$\eta = 8.1$	x: 0.179 m $\eta = 58.7$	$\eta = 23.0$	x: 0.179 m $\eta = 45.0$	x: 0.179 m $\eta = 60.6$	PASSA $\eta = 60.6$
N75/N74	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta < 0.1$	x: 0.026 m $\eta = 1.0$	x: 0.026 m $\eta = 4.2$	x: 0.026 m $\eta = 27.0$	$\eta = 3.3$	$\eta = 2.1$	x: 0.026 m $\eta = 29.4$	$\eta = 18.5$	$\eta < 0.1$	x: 0.026 m $\eta = 38.6$	PASSA $\eta = 38.6$
N74/N73	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 0.9$	x: 0.169 m $\eta = 4.1$	x: 0.026 m $\eta = 14.9$	$\eta = 3.0$	$\eta = 1.4$	x: 0.026 m $\eta = 16.3$	$\eta = 14.8$	$\eta < 0.1$	x: 0.026 m $\eta = 23.9$	PASSA $\eta = 23.9$
N73/N101	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 0.5$	x: 0.169 m $\eta = 12.1$	x: 0.169 m $\eta = 4.8$	$\eta = 2.7$	$\eta = 2.9$	x: 0.169 m $\eta = 15.9$	$\eta = 12.0$	$\eta < 0.1$	x: 0.169 m $\eta = 20.9$	PASSA $\eta = 20.9$
N23/N66	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.15 m $\eta = 3.1$	x: 0.315 m $\eta = 6.3$	x: 0.15 m $\eta = 28.1$	$\eta = 6.3$	$\eta = 0.6$	x: 0.15 m $\eta = 34.8$	$\eta = 4.6$	$\eta < 0.1$	x: 0.15 m $\eta = 41.9$	PASSA $\eta = 41.9$
N66/N65	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.9$	x: 0 m $\eta = 6.7$	x: 0 m $\eta = 8.9$	$\eta = 2.5$	$\eta = 1.4$	x: 0 m $\eta = 17.1$	$\eta = 1.5$	$\eta < 0.1$	x: 0 m $\eta = 18.0$	PASSA $\eta = 18.0$
N65/N82	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.7$	x: 0.195 m $\eta = 7.3$	x: 0.195 m $\eta = 6.2$	$\eta = 2.0$	$\eta = 2.1$	x: 0.195 m $\eta = 14.7$	$\eta = 0.7$	$\eta < 0.1$	x: 0.195 m $\eta = 15.4$	PASSA $\eta = 15.4$
N82/N52	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.5$	x: 0.195 m $\eta = 19.0$	x: 0.195 m $\eta = 23.2$	$\eta = 5.9$	$\eta = 3.2$	x: 0.195 m $\eta = 41.8$	$\eta = 1.9$	$\eta < 0.1$	x: 0.195 m $\eta = 41.4$	PASSA $\eta = 41.8$
N89/N109	$\lambda \leq 200.0$ Passa	x: 1.47 m $\eta = 1.1$	x: 0.029 m $\eta = 2.4$	x: 1.471 m $\eta = 9.6$	x: 0.029 m $\eta = 12.5$	$\eta = 0.6$	x: 1.471 m $\eta = 0.6$	x: 0.029 m $\eta = 21.4$	$\eta = 6.3$	$\eta < 0.1$	x: 0.029 m $\eta = 21.1$	PASSA $\eta = 21.4$
N61/N106	$\lambda \leq 200.0$ Passa	x: 1.47 m $\eta = 3.5$	x: 0.029 m $\eta = 4.2$	x: 1.471 m $\eta = 32.9$	x: 1.471 m $\eta = 32.7$	x: 1.47 m $\eta = 3.9$	x: 0.029 m $\eta = 4.1$	x: 1.471 m $\eta = 67.0$	$\eta = 6.7$	$\eta < 0.1$	x: 1.471 m $\eta = 65.5$	PASSA $\eta = 67.0$
N102/N69	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 15.6$	x: 1.305 m $\eta = 8.0$	x: 1.305 m $\eta = 11.0$	$\eta = 0.7$	x: 1.305 m $\eta = 0.5$	x: 1.305 m $\eta = 26.4$	$\eta = 0.6$	$\eta < 0.1$	x: 1.305 m $\eta = 27.4$	PASSA $\eta = 27.4$
N64/N102	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 16.1$	x: 0.029 m $\eta = 9.7$	x: 0.029 m $\eta = 5.6$	$\eta = 0.3$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 21.7$	$\eta = 1.7$	$\eta < 0.1$	x: 0.029 m $\eta = 23.4$	PASSA $\eta = 23.4$
N103/N68	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 3.1$	x: 1.305 m $\eta = 7.5$	x: 1.305 m $\eta = 12.1$	$\eta = 0.7$	x: 1.305 m $\eta = 0.5$	x: 1.305 m $\eta = 20.8$	$\eta = 0.9$	$\eta < 0.1$	x: 1.305 m $\eta = 20.8$	PASSA $\eta = 20.8$
N63/N103	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 2.3$	x: 0.029 m $\eta = 8.4$	x: 0.029 m $\eta = 6.6$	$\eta = 0.3$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 13.2$	$\eta = 2.7$	$\eta < 0.1$	x: 0.029 m $\eta = 12.9$	PASSA $\eta = 13.2$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N104/N67	x: 0.029 m $\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.1$	x: 0.029 m $\eta < 0.1$	x: 1.305 m $\eta = 7.1$	x: 1.305 m $\eta = 11.5$	$\eta = 0.7$	x: 1.305 m $\eta = 0.5$	x: 1.305 m $\eta = 18.8$	$\eta = 0.9$	$\eta < 0.1$	x: 1.305 m $\eta = 18.9$	PASSA $\eta = 18.9$
N62/N104	N.A. ⁽²⁾	x: 1.304 m $\eta = 1.4$	N.A. ⁽³⁾	x: 0.029 m $\eta = 6.2$	x: 0.029 m $\eta = 7.7$	$\eta = 0.4$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 11.0$	$\eta = 3.3$	$\eta < 0.1$	x: 0.029 m $\eta = 12.2$	PASSA $\eta = 12.2$
N91/N107	N.A. ⁽²⁾	x: 1.47 m $\eta = 1.4$	N.A. ⁽³⁾	x: 1.471 m $\eta = 5.3$	x: 0.029 m $\eta = 7.4$	$\eta = 0.3$	x: 1.471 m $\eta = 0.4$	x: 0.029 m $\eta = 13.3$	$\eta = 3.7$	$\eta < 0.1$	x: 0.029 m $\eta = 13.6$	PASSA $\eta = 13.6$
Notação: λ : Limitação do índice de esbeltez N_t : Resistência à tração N_c : Resistência à compressão M_x : Resistência à flexão eixo X M_y : Resistência à flexão eixo Y V_x : Resistência ao esforço cortante X V_y : Resistência ao esforço cortante Y NM_xM_y : Resistência ao esforço axial e flexão combinados T: Resistência à torção NMVT: Resistência ao momento de torção, força axial, momento fletor e cortante $\sigma \tau f$: Resistência a interações de esforços e momento de torção x: Distância à origem da barra η : Coeficiente de aproveitamento (%) N.A.: Não aplicável												
Verificações desnecessárias para o tipo de perfil (N.A.): ⁽¹⁾ A verificação não será executada, já que não existe esforço axial de tração. ⁽²⁾ A verificação não procede, já que não há força axial de compressão. ⁽³⁾ A verificação não será executada, já que não existe esforço axial de compressão.												

b) Escada: pavimento superior ao pavimento técnico

Barras	VERIFICAÇÕES (ABNT NBR 14762)														Estado
	b/t	λ	N _t	N _c	M _x	M _y	V _x	V _y	M _x V _y	M _y V _x	N _c M _x M _y	N _t M _x M _y	M _t		
N1/N2	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	η = 0.4	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 1.6 m η = 6.8	x: 0 m η = 47.7	x: 0 m η = 3.7	η = 0.8	x: 1.6 m η = 0.3	x: 0 m η = 22.9	N.A. ⁽²⁾	x: 0 m η = 49.6	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 49.6	
N5/N6	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η < 0.1	η = 0.1	x: 1.6 m η = 3.1	x: 1.6 m η = 27.1	x: 1.6 m η = 3.0	η < 0.1	x: 1.6 m η = 0.1	x: 1.6 m η = 7.5	x: 1.6 m η = 30.4	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 30.4	
N13/N14	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η < 0.1	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 1.6 m η = 3.6	x: 1.6 m η = 31.2	x: 1.6 m η = 3.1	η = 0.1	x: 1.6 m η = 0.1	x: 1.6 m η = 9.8	N.A. ⁽²⁾	x: 1.6 m η = 34.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 34.8	
N12/N15	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 0.2	x: 1.6 m η = 3.2	x: 1.6 m η = 28.1	x: 1.6 m η = 3.0	η = 0.1	x: 1.6 m η = 0.1	x: 1.6 m η = 8.0	x: 1.6 m η = 31.6	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 31.6	
N11/N16	x: 0.6 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 0.1	x: 1.6 m η = 11.1	x: 0 m η = 43.7	x: 0 m η = 3.5	η = 1.8	x: 1.6 m η = 0.8	x: 0 m η = 19.2	x: 0 m η = 50.3	x: 1.6 m η = 30.3	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 50.3	
N10/N17	x: 0.4 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 0.1	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 1.6 m η = 4.4	x: 1.6 m η = 38.2	x: 1.6 m η = 3.3	η = 0.3	x: 1.6 m η = 0.1	x: 1.6 m η = 14.7	N.A. ⁽²⁾	x: 1.6 m η = 42.7	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 42.7	
N9/N18	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η < 0.1	η = 1.0	x: 1.6 m η = 4.7	x: 1.6 m η = 40.4	x: 1.6 m η = 3.4	η = 0.3	x: 1.6 m η = 0.1	x: 1.6 m η = 16.4	x: 1.6 m η = 46.1	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 46.1	
N7/N19	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 0.7	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 14.9	x: 0 m η = 37.7	x: 0 m η = 3.2	η = 2.1	x: 0 m η = 1.4	x: 0 m η = 14.3	N.A. ⁽²⁾	x: 0 m η = 50.0	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 50.0	
N26/N57	(b _w /t) ≤ 500 Passa	x: 0 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.425 m η = 3.8	x: 0.045 m η = 0.4	x: 0.76 m η = 11.4	M _{t,Sd} = 0.00 N.A. ⁽⁶⁾	x: 0 m η = 0.9	x: 0 m η = 2.9	x: 0.76 m η = 1.3	N.A. ⁽⁷⁾	x: 0 m η = 4.6	x: 0.76 m η = 16.1	x: 0.045 m η = 4.4	PASSA η = 16.1	
N57/N27	(b _w /t) ≤ 500 Passa	x: 0.466 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.04 m η = 4.0	x: 0.733 m η = 2.4	x: 0.04 m η = 14.0	x: 0.8 m η = 2.7	x: 0.766 m η = 1.5	x: 0.8 m η = 3.6	x: 0.04 m η = 2.0	x: 0.8 m η = 0.1	x: 0.8 m η = 9.8	x: 0.04 m η = 18.9	x: 0.766 m η = 6.1	PASSA η = 18.9	
	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 19.8	x: 0.165 m η = 24.9	x: 0.165 m η = 20.7	η = 11.2	x: 0 m η = 13.5	x: 0.165 m η = 8.0	x: 0.165 m η = 5.5	x: 0.165 m η = 65.5	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 65.5	
N31/N30	x: 0.14 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 5.0	η = 0.3	x: 0 m η = 9.4	x: 0 m η = 17.6	η = 4.9	x: 0.14 m η = 15.2	x: 0 m η = 3.2	x: 0 m η = 3.3	x: 0 m η = 16.3	x: 0 m η = 31.3	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 31.3	
	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 3.3	x: 1.6 m η = 11.5	x: 0 m η = 56.6	x: 0 m η = 4.0	η = 2.0	x: 1.6 m η = 0.9	x: 0 m η = 32.2	x: 0 m η = 67.2	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 67.2	
N33/N35	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 1.2	η = 0.1	x: 0 m η = 3.5	x: 0 m η = 16.5	η = 4.3	x: 0.14 m η = 5.7	x: 0 m η = 0.4	x: 0 m η = 2.9	x: 0 m η = 1.6	x: 0 m η = 18.7	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 18.7	
N32/N34	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 0.3	η = 0.1	x: 1.6 m η = 3.6	x: 1.6 m η = 30.9	x: 1.6 m η = 3.1	η = 0.1	x: 1.6 m η = 0.1	x: 1.6 m η = 9.6	x: 1.6 m η = 8.8	x: 1.6 m η = 34.7	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 34.7	



Barras	VERIFICAÇÕES (ABNT NBR 14762)														Estado
	b/t	λ	N _t	N _c	M _x	M _y	V _x	V _y	M _x V _y	M _y V _x	N _c M _x M _y	N _t M _x M _y	M _t		
N40/N39	x: 0.4 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 0.1	x: 1.6 m η = 4.5	x: 1.6 m η = 39.2	x: 1.6 m η = 3.4	η = 0.3	x: 1.6 m η = 0.1	x: 1.6 m η = 15.5	x: 1.6 m η = 43.8	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 43.8	
N41/N42	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 0.3	η < 0.1	x: 1.6 m η = 3.8	x: 1.6 m η = 33.0	x: 1.6 m η = 3.2	η = 0.2	x: 1.6 m η = 0.1	x: 1.6 m η = 11.0	x: 0 m η = 29.5	x: 1.6 m η = 37.1	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 37.1	
N43/N44	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 0.2	η = 0.1	x: 0 m η = 10.2	x: 0 m η = 51.1	x: 0 m η = 3.7	η = 1.5	x: 0 m η = 0.7	x: 0 m η = 26.3	x: 1.6 m η = 30.4	x: 0 m η = 58.4	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 58.4	
N45/N46	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	η = 0.2	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 3.5	x: 0 m η = 30.6	x: 0 m η = 3.1	η = 0.2	x: 0 m η = 0.1	x: 0 m η = 9.5	N.A. ⁽²⁾	x: 0 m η = 34.3	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 34.3	
N52/N58	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.661 m η = 5.0	x: 0.33 m η = 0.2	x: 0.76 m η = 15.2	x: 0 m η = 2.3	x: 0.71 m η = 1.0	x: 0.71 m η = 2.0	x: 0.76 m η = 2.4	x: 0 m η = 0.1	N.A. ⁽²⁾	x: 0.76 m η = 21.2	x: 0 m η = 3.8	PASSA η = 21.2	
N58/N51	(b _w /t) ≤ 500 Passa	x: 0.04 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.09 m η = 5.4	x: 0.04 m η = 0.1	x: 0.04 m η = 16.3	x: 0.8 m η = 2.0	x: 0.692 m η = 1.1	x: 0.8 m η = 2.7	x: 0.04 m η = 2.7	x: 0.8 m η = 0.1	N.A. ⁽²⁾	x: 0.04 m η = 22.3	x: 0.692 m η = 5.4	PASSA η = 22.3	
N53/N54	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.496 m η = 4.8	x: 0 m η = 2.2	x: 0 m η = 8.1	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 0.496 m η = 0.3	x: 0 m η = 4.1	x: 0 m η = 0.8	N.A. ⁽⁷⁾	x: 0 m η = 10.0	x: 0.76 m η = 12.2	x: 0 m η = 2.1	PASSA η = 12.2	
N54/N58	(b _w /t) ≤ 500 Passa	x: 0.04 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.199 m η = 5.7	x: 0.04 m η = 1.3	x: 0.199 m η = 8.1	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 1.156 m η = 0.5	x: 1.3 m η = 3.2	x: 0.199 m η = 0.7	N.A. ⁽⁷⁾	N.A. ⁽²⁾	x: 0.199 m η = 14.2	x: 1.011 m η = 1.8	PASSA η = 14.2	
N24/N54	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.38 m η = 6.3	x: 0 m η = 2.3	x: 0.76 m η = 11.0	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 0 m η = 0.4	x: 0 m η = 1.6	x: 0.76 m η = 1.2	N.A. ⁽⁷⁾	x: 0 m η = 7.6	x: 0.76 m η = 18.2	x: 0 m η = 2.4	PASSA η = 18.2	
N54/N57	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.095 m η = 6.6	x: 0.04 m η = 1.1	x: 0.15 m η = 11.6	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 0.04 m η = 0.6	x: 1.055 m η = 1.5	x: 0.15 m η = 1.4	N.A. ⁽⁷⁾	N.A. ⁽²⁾	x: 0.15 m η = 18.0	x: 0.603 m η = 3.0	PASSA η = 18.0	
N105/N45	x: 0.277 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.451 m η = 5.8	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.451 m η = 6.5	x: 0.277 m η = 8.7	η = 1.8	x: 0.277 m η = 4.5	x: 0.451 m η = 0.6	x: 0.277 m η = 0.8	N.A. ⁽²⁾	x: 0.451 m η = 18.4	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 18.4	
N45/N43	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 6.0	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.333 m η = 11.9	x: 0.333 m η = 18.2	η = 2.4	x: 0 m η = 3.6	x: 0.333 m η = 1.5	x: 0.333 m η = 3.3	N.A. ⁽²⁾	x: 0 m η = 30.3	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 30.3	
N43/N41	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 6.5	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.333 m η = 11.7	x: 0 m η = 35.4	η = 3.2	x: 0 m η = 0.9	x: 0.333 m η = 1.4	x: 0 m η = 12.6	N.A. ⁽²⁾	x: 0 m η = 42.6	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 42.6	
N41/N40	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 6.7	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 11.7	x: 0 m η = 13.2	η = 2.4	x: 0.333 m η = 0.3	x: 0 m η = 1.4	x: 0 m η = 1.8	N.A. ⁽²⁾	x: 0 m η = 28.6	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 28.6	
N40/N32	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 6.8	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 11.3	x: 0.333 m η = 15.9	η = 2.4	x: 0.333 m η = 1.2	x: 0 m η = 1.3	x: 0.333 m η = 2.6	N.A. ⁽²⁾	x: 0 m η = 28.4	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 28.4	
N32/N31	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 7.0	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 9.5	x: 0.333 m η = 33.0	η = 3.4	x: 0.333 m η = 2.1	x: 0 m η = 0.9	x: 0.333 m η = 10.9	N.A. ⁽²⁾	x: 0 m η = 39.2	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 39.2	
N50/N48	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.2	x: 0.285 m η = 6.8	x: 0 m η = 8.9	η = 1.8	x: 0 m η = 3.4	x: 0.285 m η = 0.6	x: 0 m η = 0.8	x: 0.285 m η = 14.2	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 14.2	
N48/N46	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.2	x: 0.167 m η = 9.3	x: 0.167 m η = 13.0	η = 1.8	x: 0 m η = 3.4	x: 0.167 m η = 1.0	x: 0.167 m η = 1.7	x: 0.167 m η = 23.4	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 23.4	
N46/N44	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.0	x: 0.333 m η = 13.0	x: 0.333 m η = 15.4	η = 2.4	x: 0 m η = 2.5	x: 0.333 m η = 1.7	x: 0.333 m η = 2.4	x: 0.333 m η = 27.7	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 27.7	
N44/N42	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 1.1	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 10.3	x: 0 m η = 32.4	η = 3.7	x: 0 m η = 0.8	x: 0 m η = 1.1	x: 0 m η = 10.6	N.A. ⁽²⁾	x: 0 m η = 42.0	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 42.0	
N42/N39	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 1.3	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 10.0	x: 0 m η = 26.0	η = 4.7	x: 0.333 m η = 1.1	x: 0 m η = 1.0	x: 0 m η = 7.0	N.A. ⁽²⁾	x: 0 m η = 36.1	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 36.1	
N39/N34	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 1.6	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 8.3	x: 0.333 m η = 24.7	η = 4.6	x: 0.333 m η = 2.0	x: 0 m η = 0.7	x: 0.333 m η = 6.3	N.A. ⁽²⁾	x: 0.333 m η = 31.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 31.8	
N34/N33	x: 0.167 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 1.8	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 5.5	x: 0.333 m η = 48.2	η = 5.5	x: 0.333 m η = 2.9	x: 0 m η = 0.4	x: 0.333 m η = 23.6	N.A. ⁽²⁾	x: 0.333 m η = 51.9	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 51.9	
N49/N123	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0 m η = 1.3	x: 0.067 m η = 0.1	x: 0 m η = 1.1	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 0 m η = 1.1	x: 0 m η = 0.4	x: 0 m η < 0.1	N.A. ⁽⁷⁾	N.A. ⁽²⁾	x: 0 m η = 6.2	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 6.2	
N123/N50	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.083 m η = 0.9	x: 0.083 m η = 0.5	x: 0 m η = 3.5	x: 0 m η = 9.0	x: 0 m η = 2.6	x: 0 m η = 5.5	x: 0 m η = 0.4	x: 0 m η = 0.8	x: 0 m η = 7.6	x: 0 m η = 12.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 12.8	
N50/N51	(b _w /t) ≤ 90 Passa	x: 0 m $\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0 m η = 0.7	x: 0 m η = 0.1	x: 0 m η = 1.5	x: 0.239 m η = 4.4	x: 0 m η = 0.8	x: 0 m η = 1.9	x: 0 m η = 0.1	x: 0.239 m η = 0.2	N.A. ⁽²⁾	x: 0.239 m η = 5.5	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 5.5	
N56/N122	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	η = 2.9	η = 5.6	x: 0 m η = 12.1	x: 0 m η = 4.2	η = 3.1	x: 0.094 m η = 15.4	x: 0 m η = 3.8	x: 0 m η = 0.3	x: 0 m η = 17.7	x: 0 m η = 10.7	η = 15.0	PASSA η = 17.7	
N123/N122	(b _w /t) ≤ 500 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	η = 5.1	x: 0.124 m η = 8.7	x: 0 m η = 2.7	η = 1.1	x: 0.124 m η = 10.9	x: 0.124 m η = 1.9	x: 0 m η = 0.1	x: 0 m η = 14.1	N.A. ⁽⁴⁾	η = 13.7	PASSA η = 14.1	
N128/N1	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 15.9	x: 0.424 m η = 10.2	x: 0.424 m η = 6.4	η = 0.6	x: 0 m η = 5.5	x: 0.424 m η = 1.3	x: 0.424 m η = 0.4	x: 0.424 m η = 30.8	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 30.8	
N1/N5	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 11.5	x: 0.333 m η = 7.0	x: 0.333 m η = 17.9	η = 2.4	x: 0 m η = 2.9	x: 0.333 m η = 0.6	x: 0.333 m η = 3.2	x: 0.333 m η = 35.6	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 35.6	



Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N _t	N _c	M _x	M _y	V _x	V _y	M _x V _y	M _y V _x	N _c M _x M _y	N _t M _x M _y	M _t	
N5/N13	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 11.2	x: 0.333 m η = 9.9	x: 0 m η = 10.4	η = 2.3	x: 0 m η = 2.0	x: 0.333 m η = 1.0	x: 0 m η = 1.1	x: 0.333 m η = 29.0	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 29.0
N13/N12	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 10.9	x: 0.333 m η = 11.4	x: 0 m η = 10.3	η = 2.2	x: 0 m η = 1.1	x: 0.333 m η = 1.3	x: 0 m η = 1.1	x: 0.333 m η = 29.8	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 29.8
N12/N11	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 10.5	x: 0.333 m η = 11.6	x: 0.333 m η = 16.2	η = 2.2	x: 0 m η = 0.6	x: 0.333 m η = 1.4	x: 0.333 m η = 2.6	x: 0 m η = 37.2	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 37.2
N11/N10	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 10.3	x: 0 m η = 12.2	x: 0 m η = 29.1	η = 2.8	x: 0.333 m η = 2.8	x: 0 m η = 1.6	x: 0 m η = 8.6	x: 0 m η = 43.3	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 43.3
N10/N9	x: 0.167 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 10.1	x: 0 m η = 8.1	x: 0 m η = 12.5	η = 2.5	x: 0.333 m η = 3.7	x: 0 m η = 0.8	x: 0 m η = 1.6	x: 0 m η = 25.9	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 25.9
N9/N7	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 10.0	x: 0.333 m η = 4.0	x: 0.333 m η = 34.3	η = 3.8	x: 0.333 m η = 4.6	x: 0.333 m η = 0.4	x: 0.333 m η = 11.9	x: 0.333 m η = 40.7	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 40.7
N7/N8	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 12.7	x: 0.056 m η = 1.7	x: 0 m η = 54.6	η = 5.8	x: 0.056 m η = 7.5	x: 0.056 m η = 0.6	x: 0 m η = 30.2	x: 0 m η = 61.0	N.A. ⁽⁴⁾	η = 5.5	PASSA η = 61.0
N129/N2	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 5.1	x: 0.424 m η = 8.8	x: 0.424 m η = 10.6	η = 1.0	x: 0 m η = 4.7	x: 0.424 m η = 1.0	x: 0.424 m η = 1.1	x: 0.424 m η = 22.0	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 22.0
N2/N6	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 2.1	x: 0.333 m η = 7.6	x: 0 m η = 29.7	η = 3.5	x: 0 m η = 2.8	x: 0.333 m η = 0.6	x: 0 m η = 8.9	x: 0 m η = 34.5	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 34.5
N6/N14	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.8	x: 0.333 m η = 10.3	x: 0 m η = 19.0	η = 3.4	x: 0 m η = 1.9	x: 0.333 m η = 1.1	x: 0 m η = 3.7	x: 0 m η = 26.9	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 26.9
N14/N15	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.4	x: 0.333 m η = 11.8	x: 0.333 m η = 17.2	η = 3.4	x: 0 m η = 1.0	x: 0.333 m η = 1.4	x: 0.333 m η = 3.1	x: 0.333 m η = 27.5	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 27.5
N15/N16	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0 m η = 1.0	x: 0.333 m η = 11.9	x: 0.333 m η = 22.6	η = 3.1	x: 0.333 m η = 0.9	x: 0.333 m η = 1.4	x: 0.333 m η = 5.2	x: 0.333 m η = 32.0	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 32.0
N16/N17	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m η = 0.1	x: 0 m η = 0.7	x: 0 m η = 12.7	x: 0 m η = 38.7	η = 4.9	x: 0.333 m η = 1.8	x: 0 m η = 1.7	x: 0 m η = 15.2	x: 0 m η = 48.9	x: 0 m η = 31.6	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 48.9
N17/N18	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.333 m η = 0.2	x: 0 m η = 0.2	x: 0 m η = 10.1	x: 0 m η = 25.0	η = 5.3	x: 0.333 m η = 2.7	x: 0 m η = 1.1	x: 0 m η = 6.5	x: 0 m η = 29.9	x: 0 m η = 33.0	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 33.0
N18/N19	x: 0.167 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.333 m η = 0.3	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 6.2	x: 0.333 m η = 24.6	η = 3.9	x: 0.333 m η = 3.6	x: 0 m η = 0.5	x: 0.333 m η = 6.2	N.A. ⁽²⁾	x: 0.333 m η = 25.3	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 25.3
N19/N56	x: 0.055 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.055 m η = 0.8	x: 0 m η = 1.0	x: 0 m η = 5.4	x: 0 m η = 18.1	η = 7.7	x: 0.056 m η = 6.3	x: 0 m η = 0.7	x: 0 m η = 3.9	x: 0 m η = 11.0	x: 0 m η = 22.2	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 22.2
N23/N53	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0.57 m η = 9.4	x: 0.76 m η = 3.8	x: 0.381 m η = 8.0	x: 0.381 m η = 1.5	x: 0.051 m η = 1.6	x: 0.76 m η = 0.1	x: 0.381 m η = 0.7	x: 0.76 m η = 19.4	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 19.4
N53/N8	x: 0.04 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	N _{t,Sd} = 0.00 N.A. ⁽⁵⁾	x: 0.04 m η = 8.7	x: 0.678 m η = 6.5	M _{Sd} = 0.00 N.A. ⁽⁶⁾	x: 0.359 m η = 0.5	x: 0.359 m η = 2.7	x: 0.678 m η = 0.5	N.A. ⁽⁷⁾	x: 0.678 m η = 17.8	N.A. ⁽⁴⁾	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 17.8
N8/N26	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0 m η = 0.7	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 0.5	x: 0 m η = 17.8	x: 0 m η = 7.5	x: 0.05 m η = 1.6	x: 0.099 m η < 0.1	x: 0 m η = 3.7	N.A. ⁽²⁾	x: 0 m η = 18.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 18.8
N23/N29	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0 m η = 0.2	x: 0.075 m η = 2.6	x: 0.15 m η = 2.3	x: 0.15 m η = 42.8	x: 0.075 m η = 10.3	x: 0.075 m η = 3.6	x: 0.075 m η = 0.2	x: 0.15 m η = 19.4	x: 0.15 m η = 47.8	x: 0.075 m η = 23.9	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 47.8
N29/N24	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0 m η = 2.6	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.65 m η = 6.1	x: 0 m η = 4.8	x: 0 m η = 0.4	x: 0 m η = 3.1	x: 0.65 m η = 0.4	x: 0 m η = 0.2	N.A. ⁽²⁾	x: 0.65 m η = 10.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 10.8
N24/N59	x: 0.238 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.475 m η = 4.3	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0 m η = 5.8	x: 0.951 m η = 11.2	x: 0.475 m η = 0.9	x: 0.951 m η = 1.2	x: 0 m η = 0.3	x: 0.951 m η = 1.3	N.A. ⁽²⁾	x: 0.951 m η = 15.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 15.8
N59/N105	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0 m η = 4.9	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.151 m η = 3.1	x: 0.151 m η = 21.5	x: 0 m η = 9.0	x: 0.151 m η = 3.9	x: 0.151 m η = 0.2	x: 0.151 m η = 5.4	N.A. ⁽²⁾	x: 0.151 m η = 24.8	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 24.8
N105/N52	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0 m η = 0.3	x: 0.12 m η = 0.4	x: 0 m η = 1.3	x: 0.239 m η = 4.9	x: 0 m η = 0.7	x: 0 m η = 1.6	x: 0 m η < 0.1	x: 0.239 m η = 0.2	x: 0.239 m η = 5.6	x: 0.12 m η = 4.5	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 5.6
N49/N56	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0 m η = 0.8	x: 0.057 m η = 0.4	x: 0.114 m η = 1.2	x: 0.114 m η = 4.3	x: 0 m η = 2.2	x: 0.114 m η = 1.5	x: 0.114 m η < 0.1	x: 0.114 m η = 0.2	x: 0.057 m η = 3.1	x: 0.114 m η = 5.2	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 5.2
N56/N27	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	x: 0.041 m η = 0.5	N _{c,Sd} = 0.00 N.A. ⁽¹⁾	x: 0.1 m η = 0.7	x: 0.041 m η = 27.4	x: 0.041 m η = 16.8	x: 0.071 m η = 2.0	x: 0.1 m η < 0.1	x: 0.041 m η = 10.2	N.A. ⁽²⁾	x: 0.041 m η = 28.0	M _{t,Sd} = 0.00 N.A. ⁽³⁾	PASSA η = 28.0
Notação: b/t: Valores máximos da relação comprimento-espessura λ: Limitação de esbeltez N _t : Resistência à tração N _c : Resistência à compressão M _x : Resistência à flexão eixo X M _y : Resistência à flexão eixo Y V _x : Resistência ao esforço cortante X V _y : Resistência ao esforço cortante Y M _x V _y : Resistência ao momento fletor X e esforço cortante Y combinados M _y V _x : Resistência ao momento fletor Y e esforço cortante X combinados N _c M _x M _y : Resistência à flexo-compressão N _t M _x M _y : Resistência à flexo-tração M _t : Resistência à torção x: Distância à origem da barra η: Coeficiente de aproveitamento (%) N.A.: Não aplicável														



Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N _t	N _c	M _x	M _y	V _x	V _y	M _x V _y	M _y V _x	N _c M _x M _y	N _t M _x M _y	M _t	
Verificações desnecessárias para o tipo de perfil (N.A.):														
⁽¹⁾ A verificação não será executada, já que não existe esforço axial de compressão.														
⁽²⁾ Não há interação entre o esforço axial de compressão e o momento fletor para nenhuma combinação. Assim a verificação não será executada.														
⁽³⁾ A verificação não é necessária, já que não existe momento torsor.														
⁽⁴⁾ Não há interação entre o esforço axial de tração e o momento fletor para nenhuma combinação. Assim a verificação não será executada.														
⁽⁵⁾ A verificação não será executada, já que não existe esforço axial de tração.														
⁽⁶⁾ A verificação não será executada, já que não existe momento fletor.														
⁽⁷⁾ Não há interação entre o momento fletor e o esforço cortante para nenhuma combinação. Assim a verificação não será executada.														

Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	$N M_x M_y$	T	NMVT	$\sigma \tau f$	
N1/N65	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 5.1$	x: 0.179 m $\eta = 29.4$	x: 0.179 m $\eta = 46.3$	$\eta = 18.9$	$\eta = 1.5$	x: 0.179 m $\eta = 78.2$	$\eta = 9.6$	$\eta < 0.1$	x: 0.179 m $\eta = 79.5$	PASSA $\eta = 79.5$
N65/N64	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 1.6$	x: 0.026 m $\eta = 25.1$	x: 0.169 m $\eta = 8.1$	$\eta = 1.9$	$\eta = 1.7$	x: 0.026 m $\eta = 29.0$	$\eta = 6.0$	$\eta < 0.1$	x: 0.026 m $\eta = 35.8$	PASSA $\eta = 35.8$
N64/N63	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 1.2$	x: 0.026 m $\eta = 19.1$	x: 0.026 m $\eta = 5.0$	$\eta = 0.5$	$\eta = 1.9$	x: 0.026 m $\eta = 24.6$	$\eta = 1.5$	$\eta < 0.1$	x: 0.026 m $\eta = 27.8$	PASSA $\eta = 27.8$
N63/N3	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta < 0.1$	x: 0.026 m $\eta = 1.6$	x: 0.026 m $\eta = 12.4$	x: 0.169 m $\eta = 12.4$	$\eta = 3.0$	$\eta = 2.2$	x: 0.169 m $\eta = 18.3$	$\eta = 4.2$	$\eta < 0.1$	x: 0.169 m $\eta = 19.3$	PASSA $\eta = 19.3$
N11/N71	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.6$	x: 0.179 m $\eta = 1.6$	x: 0.179 m $\eta = 41.7$	x: 0.289 m $\eta = 3.3$	$\eta = 1.8$	$\eta = 3.3$	x: 0.179 m $\eta = 44.4$	$\eta = 23.4$	x: 0.179 m $\eta = 49.2$	x: 0.179 m $\eta = 57.5$	PASSA $\eta = 57.5$
N71/N70	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 2.0$	x: 0.026 m $\eta = 34.4$	x: 0.026 m $\eta = 5.0$	$\eta = 2.1$	$\eta = 3.7$	x: 0.026 m $\eta = 37.9$	$\eta = 16.3$	$\eta < 0.1$	x: 0.026 m $\eta = 48.4$	PASSA $\eta = 48.4$
N70/N69	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.9$	x: 0.026 m $\eta = 23.5$	x: 0.169 m $\eta = 3.0$	$\eta = 1.3$	$\eta = 4.1$	x: 0.026 m $\eta = 25.8$	$\eta = 10.0$	$\eta < 0.1$	x: 0.026 m $\eta = 33.6$	PASSA $\eta = 33.6$
N69/N4	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.5$	x: 0.026 m $\eta = 10.6$	x: 0.169 m $\eta = 5.7$	$\eta = 2.2$	$\eta = 4.4$	x: 0.026 m $\eta = 12.3$	$\eta = 5.6$	$\eta < 0.1$	x: 0.026 m $\eta = 16.0$	PASSA $\eta = 16.0$
N2/N77	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.6$	x: 0.179 m $\eta = 3.9$	x: 0.179 m $\eta = 26.5$	x: 0.179 m $\eta = 34.0$	$\eta = 13.6$	$\eta = 1.6$	x: 0.179 m $\eta = 48.6$	$\eta = 9.2$	$\eta < 0.1$	x: 0.179 m $\eta = 50.0$	PASSA $\eta = 50.0$
N77/N76	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.4$	x: 0.026 m $\eta = 1.4$	x: 0.026 m $\eta = 22.7$	x: 0.169 m $\eta = 5.6$	$\eta = 1.2$	$\eta = 1.8$	x: 0.026 m $\eta = 28.1$	$\eta = 5.6$	$\eta < 0.1$	x: 0.026 m $\eta = 32.1$	PASSA $\eta = 32.1$
N76/N75	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 1.0$	x: 0.026 m $\eta = 17.2$	x: 0.026 m $\eta = 4.8$	$\eta = 1.2$	$\eta = 2.0$	x: 0.026 m $\eta = 22.1$	$\eta = 1.3$	$\eta < 0.1$	x: 0.026 m $\eta = 24.6$	PASSA $\eta = 24.6$
N75/N20	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.5$	x: 0.026 m $\eta = 11.2$	x: 0.169 m $\eta = 11.1$	$\eta = 2.6$	$\eta = 2.2$	x: 0.026 m $\eta = 15.5$	$\eta = 4.1$	$\eta < 0.1$	x: 0.026 m $\eta = 17.2$	PASSA $\eta = 17.2$
N16/N104	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 1.0$	x: 0.179 m $\eta = 1.4$	x: 0.179 m $\eta = 32.8$	x: 0.179 m $\eta = 10.1$	$\eta = 3.4$	$\eta = 3.7$	x: 0.179 m $\eta = 42.3$	$\eta = 21.2$	x: 0.179 m $\eta = 39.8$	x: 0.179 m $\eta = 47.3$	PASSA $\eta = 47.3$
N104/N103	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.6$	x: 0.026 m $\eta = 1.6$	x: 0.026 m $\eta = 25.7$	x: 0.026 m $\eta = 5.0$	$\eta = 1.7$	$\eta = 3.9$	x: 0.026 m $\eta = 31.3$	$\eta = 15.6$	$\eta < 0.1$	x: 0.026 m $\eta = 36.8$	PASSA $\eta = 36.8$
N103/N102	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.5$	x: 0.026 m $\eta = 1.6$	x: 0.026 m $\eta = 16.0$	x: 0.026 m $\eta = 4.8$	$\eta = 1.9$	$\eta = 4.1$	x: 0.026 m $\eta = 21.4$	$\eta = 11.5$	$\eta < 0.1$	x: 0.026 m $\eta = 24.5$	PASSA $\eta = 24.5$
N102/N22	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.5$	x: 0.026 m $\eta = 1.1$	x: 0.169 m $\eta = 7.1$	x: 0.169 m $\eta = 10.3$	$\eta = 4.7$	$\eta = 4.3$	x: 0.169 m $\eta = 17.8$	$\eta = 7.8$	$\eta < 0.1$	x: 0.169 m $\eta = 18.3$	PASSA $\eta = 18.3$
N23/N74	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.15 m $\eta = 2.5$	x: 0.15 m $\eta = 8.1$	x: 0.15 m $\eta = 16.0$	$\eta = 4.8$	$\eta = 1.8$	x: 0.15 m $\eta = 25.4$	$\eta = 1.0$	$\eta < 0.1$	x: 0.15 m $\eta = 26.7$	PASSA $\eta = 26.7$
N74/N73	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 2.1$	x: 0 m $\eta = 4.1$	x: 0 m $\eta = 2.9$	$\eta = 1.1$	$\eta = 1.2$	x: 0 m $\eta = 8.1$	$\eta = 0.2$	$\eta < 0.1$	x: 0 m $\eta = 9.0$	PASSA $\eta = 9.0$
N73/N72	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.7$	x: 0.195 m $\eta = 2.4$	x: 0.195 m $\eta = 2.4$	$\eta = 0.8$	$\eta = 0.8$	x: 0.195 m $\eta = 5.4$	N.A. ⁽²⁾	N.A. ⁽³⁾	$\eta = 1.1$	PASSA $\eta = 5.4$
N72/N25	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.4$	x: 0.195 m $\eta = 5.1$	x: 0.195 m $\eta = 5.1$	$\eta = 1.2$	$\eta = 1.1$	x: 0.195 m $\eta = 10.8$	N.A. ⁽²⁾	N.A. ⁽³⁾	$\eta = 1.7$	PASSA $\eta = 10.8$
N33/N89	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.8$	x: 0.179 m $\eta = 0.6$	x: 0.179 m $\eta = 13.8$	x: 0.179 m $\eta = 34.1$	$\eta = 3.9$	$\eta = 6.4$	x: 0.179 m $\eta = 41.2$	$\eta = 19.5$	$\eta < 0.1$	x: 0.179 m $\eta = 48.5$	PASSA $\eta = 48.5$
N89/N88	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 0.9$	x: 0.026 m $\eta = 6.1$	x: 0.026 m $\eta = 24.2$	$\eta = 3.5$	$\eta = 1.0$	x: 0.026 m $\eta = 30.2$	$\eta = 15.6$	$\eta < 0.1$	x: 0.026 m $\eta = 34.6$	PASSA $\eta = 34.6$
N88/N87	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 1.0$	x: 0.026 m $\eta = 4.3$	x: 0.026 m $\eta = 12.8$	$\eta = 3.2$	$\eta = 1.0$	x: 0.026 m $\eta = 17.2$	$\eta = 12.9$	$\eta < 0.1$	x: 0.026 m $\eta = 21.2$	PASSA $\eta = 21.2$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N87/N36	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta < 0.1$	x: 0.026 m $\eta = 0.7$	x: 0.169 m $\eta = 8.9$	x: 0.169 m $\eta = 6.4$	$\eta = 2.8$	$\eta = 1.6$	x: 0.169 m $\eta = 14.1$	$\eta = 11.1$	$\eta < 0.1$	x: 0.169 m $\eta = 18.1$	PASSA $\eta = 18.1$
N44/N95	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 3.6$	x: 0.179 m $\eta = 19.7$	x: 0.179 m $\eta = 32.0$	$\eta = 1.9$	$\eta = 6.9$	x: 0.179 m $\eta = 52.5$	$\eta = 8.5$	$\eta < 0.1$	x: 0.179 m $\eta = 53.3$	PASSA $\eta = 53.3$
N95/N94	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 2.4$	x: 0.026 m $\eta = 4.0$	x: 0.026 m $\eta = 28.3$	$\eta = 2.3$	$\eta = 1.0$	x: 0.026 m $\eta = 33.4$	$\eta = 4.5$	$\eta < 0.1$	x: 0.026 m $\eta = 41.1$	PASSA $\eta = 41.1$
N94/N93	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 2.3$	x: 0.026 m $\eta = 4.1$	x: 0.026 m $\eta = 22.1$	$\eta = 2.8$	$\eta = 0.9$	x: 0.026 m $\eta = 27.3$	$\eta = 0.6$	$\eta < 0.1$	x: 0.026 m $\eta = 32.8$	PASSA $\eta = 32.8$
N93/N47	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 2.5$	x: 0.026 m $\eta = 3.9$	x: 0.026 m $\eta = 13.4$	$\eta = 3.6$	$\eta = 2.6$	x: 0.026 m $\eta = 18.5$	$\eta = 3.1$	$\eta < 0.1$	x: 0.026 m $\eta = 21.4$	PASSA $\eta = 21.4$
N43/N86	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.179 m $\eta = 2.1$	x: 0.179 m $\eta = 6.1$	x: 0.179 m $\eta = 47.1$	$\eta = 5.0$	$\eta = 3.0$	x: 0.179 m $\eta = 53.5$	$\eta = 20.9$	x: 0.179 m $\eta = 55.7$	x: 0.179 m $\eta = 66.0$	PASSA $\eta = 66.0$
N86/N127	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.3$	x: 0.026 m $\eta = 1.7$	x: 0.026 m $\eta = 4.4$	x: 0.026 m $\eta = 36.4$	$\eta = 4.9$	$\eta = 1.8$	x: 0.026 m $\eta = 38.7$	$\eta = 13.6$	$\eta < 0.1$	x: 0.026 m $\eta = 51.0$	PASSA $\eta = 51.0$
N127/N85	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.2$	x: 0.026 m $\eta = 1.7$	x: 0.169 m $\eta = 3.5$	x: 0.026 m $\eta = 23.6$	$\eta = 4.7$	$\eta = 1.5$	x: 0.026 m $\eta = 26.5$	$\eta = 6.9$	$\eta < 0.1$	x: 0.026 m $\eta = 33.8$	PASSA $\eta = 33.8$
N85/N37	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 2.2$	x: 0.169 m $\eta = 6.8$	x: 0.026 m $\eta = 11.9$	$\eta = 4.5$	$\eta = 2.9$	x: 0.026 m $\eta = 14.7$	$\eta = 0.7$	$\eta < 0.1$	x: 0.026 m $\eta = 18.5$	PASSA $\eta = 18.5$
N31/N82	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 0.9$	x: 0.179 m $\eta = 0.7$	x: 0.179 m $\eta = 22.2$	x: 0.179 m $\eta = 36.7$	$\eta = 3.7$	$\eta = 7.0$	x: 0.179 m $\eta = 57.8$	$\eta = 22.4$	x: 0.179 m $\eta = 43.9$	x: 0.179 m $\eta = 59.1$	PASSA $\eta = 59.1$
N82/N81	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 0.9$	x: 0.026 m $\eta = 4.8$	x: 0.026 m $\eta = 26.3$	$\eta = 3.4$	$\eta = 2.2$	x: 0.026 m $\eta = 29.4$	$\eta = 18.1$	$\eta < 0.1$	x: 0.026 m $\eta = 38.2$	PASSA $\eta = 38.2$
N81/N80	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 0.9$	x: 0.169 m $\eta = 4.0$	x: 0.026 m $\eta = 14.3$	$\eta = 3.0$	$\eta = 1.3$	x: 0.026 m $\eta = 15.6$	$\eta = 14.5$	$\eta < 0.1$	x: 0.026 m $\eta = 23.3$	PASSA $\eta = 23.3$
N80/N38	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta < 0.1$	x: 0.026 m $\eta = 0.5$	x: 0.169 m $\eta = 12.1$	x: 0.169 m $\eta = 5.3$	$\eta = 2.7$	$\eta = 3.0$	x: 0.169 m $\eta = 16.9$	$\eta = 11.9$	$\eta < 0.1$	x: 0.169 m $\eta = 21.5$	PASSA $\eta = 21.5$
N37/N38	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.1$	x: 0.029 m $\eta = 3.5$	x: 1.305 m $\eta = 19.1$	x: 1.305 m $\eta = 18.0$	x: 1.305 m $\eta = 3.7$	x: 1.305 m $\eta = 3.7$	x: 1.305 m $\eta = 36.3$	$\eta = 0.7$	$\eta < 0.1$	x: 1.305 m $\eta = 34.9$	PASSA $\eta = 36.3$
N55/N37	$\lambda \leq 200.0$ Passa	x: 0.756 m $\eta = 0.7$	x: 0 m $\eta = 1.3$	x: 0.756 m $\eta = 10.4$	x: 0.756 m $\eta = 11.7$	x: 0.756 m $\eta = 3.0$	x: 0.756 m $\eta = 2.7$	x: 0.756 m $\eta = 18.8$	$\eta = 4.2$	$\eta < 0.1$	x: 0.756 m $\eta = 18.9$	PASSA $\eta = 18.9$
N47/N36	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.3$	x: 0.029 m $\eta = 2.5$	x: 0.029 m $\eta = 24.7$	x: 1.305 m $\eta = 17.7$	x: 1.305 m $\eta = 3.8$	x: 0.029 m $\eta = 4.0$	x: 0.029 m $\eta = 30.3$	$\eta = 1.9$	$\eta < 0.1$	x: 0.029 m $\eta = 35.2$	PASSA $\eta = 35.2$
N60/N47	x: 0 m $\lambda \leq 200.0$ Passa	x: 0.935 m $\eta = 1.5$	x: 0 m $\eta = 0.3$	x: 0.935 m $\eta = 18.6$	x: 0 m $\eta = 16.9$	x: 0 m $\eta = 3.1$	x: 0.935 m $\eta = 3.6$	x: 0 m $\eta = 21.5$	$\eta = 4.4$	$\eta < 0.1$	x: 0.935 m $\eta = 25.9$	PASSA $\eta = 25.9$
N53/N99	$\lambda \leq 200.0$ Passa	x: 0.315 m $\eta = 0.3$	x: 0.15 m $\eta = 1.5$	x: 0.15 m $\eta = 34.5$	x: 0.15 m $\eta = 8.2$	$\eta = 1.8$	$\eta = 2.8$	x: 0.15 m $\eta = 43.1$	$\eta = 6.5$	$\eta < 0.1$	x: 0.15 m $\eta = 49.1$	PASSA $\eta = 49.1$
N99/N100	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.2$	x: 0 m $\eta = 1.4$	x: 0 m $\eta = 25.0$	x: 0 m $\eta = 6.9$	$\eta = 2.6$	$\eta = 2.5$	x: 0 m $\eta = 32.5$	$\eta = 7.6$	$\eta < 0.1$	x: 0 m $\eta = 36.3$	PASSA $\eta = 36.3$
N100/N101	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.1$	x: 0 m $\eta = 1.4$	x: 0 m $\eta = 16.5$	x: 0.195 m $\eta = 4.8$	$\eta = 2.1$	$\eta = 2.4$	x: 0 m $\eta = 20.7$	$\eta = 9.1$	$\eta < 0.1$	x: 0 m $\eta = 24.1$	PASSA $\eta = 24.1$
N101/N61	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta < 0.1$	x: 0 m $\eta = 1.4$	x: 0 m $\eta = 9.2$	x: 0.195 m $\eta = 10.0$	$\eta = 3.3$	$\eta = 2.8$	x: 0 m $\eta = 13.3$	$\eta = 9.2$	$\eta < 0.1$	x: 0.195 m $\eta = 17.5$	PASSA $\eta = 17.5$
N24/N98	$\lambda \leq 200.0$ Passa	x: 0.315 m $\eta = 0.2$	x: 0.15 m $\eta = 1.3$	x: 0.15 m $\eta = 9.2$	x: 0.15 m $\eta = 35.5$	$\eta = 3.4$	$\eta = 2.7$	x: 0.15 m $\eta = 45.2$	$\eta = 6.9$	$\eta < 0.1$	x: 0.15 m $\eta = 50.8$	PASSA $\eta = 50.8$
N98/N124	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.2$	x: 0 m $\eta = 1.3$	x: 0 m $\eta = 5.3$	x: 0 m $\eta = 23.8$	$\eta = 2.8$	$\eta = 2.1$	x: 0 m $\eta = 29.6$	$\eta = 6.9$	$\eta < 0.1$	x: 0 m $\eta = 34.2$	PASSA $\eta = 34.2$
N124/N97	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.1$	x: 0 m $\eta = 1.3$	x: 0.195 m $\eta = 4.5$	x: 0 m $\eta = 14.4$	$\eta = 2.4$	$\eta = 2.0$	x: 0 m $\eta = 18.4$	$\eta = 7.3$	$\eta < 0.1$	x: 0 m $\eta = 21.2$	PASSA $\eta = 21.2$
N97/N62	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.1$	x: 0 m $\eta = 1.3$	x: 0.195 m $\eta = 5.8$	x: 0 m $\eta = 7.3$	$\eta = 2.5$	$\eta = 1.9$	x: 0 m $\eta = 9.9$	$\eta = 6.4$	$\eta < 0.1$	x: 0 m $\eta = 12.4$	PASSA $\eta = 12.4$
N78/N83	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.5$	x: 0 m $\eta = 4.8$	x: 0 m $\eta = 11.4$	$\eta = 0.7$	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 15.8$	$\eta = 1.4$	$\eta < 0.1$	x: 0 m $\eta = 16.4$	PASSA $\eta = 16.4$
N79/N84	$\lambda \leq 200.0$ Passa	$\eta < 0.1$	$\eta = 0.7$	x: 0 m $\eta = 6.2$	x: 0 m $\eta = 9.2$	$\eta = 0.7$	x: 0 m $\eta = 1.6$	x: 0 m $\eta = 14.4$	$\eta = 2.4$	$\eta < 0.1$	x: 0 m $\eta = 14.1$	PASSA $\eta = 14.4$
N59/N79	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.15 m $\eta = 2.3$	x: 0.15 m $\eta = 5.9$	x: 0.15 m $\eta = 18.1$	$\eta = 0.5$	$\eta = 2.0$	x: 0.15 m $\eta = 25.1$	$\eta = 5.4$	$\eta < 0.1$	x: 0.15 m $\eta = 28.0$	PASSA $\eta = 28.0$
N79/N125	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.1$	x: 0 m $\eta = 2.1$	x: 0 m $\eta = 4.6$	x: 0 m $\eta = 18.8$	$\eta = 1.2$	$\eta = 1.9$	x: 0 m $\eta = 24.3$	$\eta = 2.8$	$\eta < 0.1$	x: 0 m $\eta = 28.1$	PASSA $\eta = 28.1$
N125/N78	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.2$	x: 0 m $\eta = 1.9$	x: 0.195 m $\eta = 4.0$	x: 0 m $\eta = 15.8$	$\eta = 2.0$	$\eta = 1.7$	x: 0 m $\eta = 19.4$	$\eta = 1.1$	$\eta < 0.1$	x: 0 m $\eta = 23.4$	PASSA $\eta = 23.4$
N78/N96	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.2$	x: 0 m $\eta = 1.6$	x: 0.195 m $\eta = 2.8$	x: 0 m $\eta = 9.8$	$\eta = 2.8$	$\eta = 1.0$	x: 0 m $\eta = 11.3$	$\eta = 0.1$	$\eta < 0.1$	x: 0 m $\eta = 14.8$	PASSA $\eta = 14.8$
N83/N85	$\lambda \leq 200.0$ Passa	x: 0.755 m $\eta = 0.1$	x: 0 m $\eta = 0.6$	x: 0.755 m $\eta = 3.5$	x: 0 m $\eta = 8.2$	$\eta = 0.7$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 10.5$	$\eta = 3.9$	$\eta < 0.1$	x: 0 m $\eta = 11.5$	PASSA $\eta = 11.5$
N85/N80	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 1.1$	x: 0.029 m $\eta = 0.1$	x: 1.305 m $\eta = 4.4$	x: 0.029 m $\eta = 8.8$	$\eta = 0.4$	x: 1.305 m $\eta = 0.3$	x: 0.029 m $\eta = 11.2$	$\eta = 0.9$	$\eta < 0.1$	x: 0.029 m $\eta = 13.2$	PASSA $\eta = 13.2$
N84/N86	$\lambda \leq 200.0$ Passa	x: 0.755 m $\eta < 0.1$	x: 0 m $\eta = 1.0$	x: 0.755 m $\eta = 2.3$	x: 0 m $\eta = 6.8$	$\eta = 0.7$	x: 0 m $\eta = 0.2$	x: 0.755 m $\eta = 8.5$	$\eta = 2.0$	$\eta < 0.1$	x: 0 m $\eta = 9.7$	PASSA $\eta = 9.7$
N86/N82	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 4.3$	x: 1.305 m $\eta = 4.6$	x: 0.029 m $\eta = 7.8$	$\eta = 0.5$	x: 1.305 m $\eta = 0.3$	x: 1.305 m $\eta = 12.1$	$\eta = 0.5$	$\eta < 0.1$	x: 0.029 m $\eta = 13.1$	PASSA $\eta = 13.1$
N95/N89	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.1$	x: 0.029 m $\eta = 5.4$	x: 0.029 m $\eta = 2.4$	x: 0.029 m $\eta = 7.5$	$\eta = 0.5$	x: 0.029 m $\eta = 0.2$	x: 0.029 m $\eta = 12.3$	$\eta = 1.4$	$\eta < 0.1$	x: 0.029 m $\eta = 13.5$	PASSA $\eta = 13.5$
N92/N95	$\lambda \leq 200.0$ Passa	x: 0.934 m $\eta = 0.2$	x: 0 m $\eta = 0.1$	x: 0.935 m $\eta = 2.3$	x: 0 m $\eta = 2.9$	$\eta = 0.1$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 4.3$	$\eta = 1.8$	$\eta < 0.1$	x: 0 m $\eta = 4.4$	PASSA $\eta = 4.4$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N93/N87	N.A. ⁽⁴⁾	x: 1.304 m $\eta = 0.9$	N.A. ⁽⁵⁾	x: 0.029 m $\eta = 5.9$	x: 0.029 m $\eta = 11.0$	$\eta = 0.5$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 17.3$	$\eta = 1.8$	$\eta < 0.1$	x: 0.029 m $\eta = 17.5$	PASSA $\eta = 17.5$
N90/N93	$\lambda \leq 200.0$ Passa	x: 0.934 m $\eta = 0.1$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 2.4$	x: 0 m $\eta = 10.1$	$\eta = 0.7$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 12.6$	$\eta = 3.7$	$\eta < 0.1$	x: 0 m $\eta = 14.2$	PASSA $\eta = 14.2$
N77/N104	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.7$	x: 0.029 m $\eta = 10.2$	x: 0.029 m $\eta = 5.2$	x: 0.029 m $\eta = 5.9$	$\eta = 0.3$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 12.0$	$\eta = 0.5$	$\eta < 0.1$	x: 0.029 m $\eta = 13.4$	PASSA $\eta = 13.4$
N76/N103	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.2$	x: 0.029 m $\eta = 1.1$	x: 1.305 m $\eta = 4.1$	x: 0.029 m $\eta = 6.9$	$\eta = 0.3$	x: 1.305 m $\eta = 0.3$	x: 0.029 m $\eta = 10.4$	$\eta = 1.0$	$\eta < 0.1$	x: 0.029 m $\eta = 10.3$	PASSA $\eta = 10.4$
N75/N102	N.A. ⁽⁴⁾	x: 1.304 m $\eta = 1.5$	N.A. ⁽⁵⁾	x: 1.305 m $\eta = 4.5$	x: 0.029 m $\eta = 8.4$	$\eta = 0.3$	x: 1.305 m $\eta = 0.3$	x: 0.029 m $\eta = 12.7$	$\eta = 1.3$	$\eta < 0.1$	x: 0.029 m $\eta = 13.5$	PASSA $\eta = 13.5$
N20/N22	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.4$	x: 0.029 m $\eta = 3.3$	x: 1.305 m $\eta = 22.1$	x: 1.305 m $\eta = 17.4$	x: 1.305 m $\eta = 3.7$	x: 1.305 m $\eta = 3.9$	x: 1.305 m $\eta = 39.6$	$\eta = 1.3$	$\eta < 0.1$	x: 1.305 m $\eta = 38.0$	PASSA $\eta = 39.6$
N3/N4	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta = 0.1$	x: 0.029 m $\eta = 3.7$	x: 0.029 m $\eta = 19.5$	x: 1.305 m $\eta = 19.2$	x: 1.305 m $\eta = 3.7$	x: 0.029 m $\eta = 3.7$	x: 1.305 m $\eta = 37.9$	$\eta = 2.9$	$\eta < 0.1$	x: 1.305 m $\eta = 36.3$	PASSA $\eta = 37.9$
N63/N69	N.A. ⁽⁴⁾	x: 1.304 m $\eta = 1.4$	N.A. ⁽⁵⁾	x: 0.029 m $\eta = 5.1$	x: 0.029 m $\eta = 8.0$	$\eta = 0.4$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 12.2$	$\eta = 2.7$	$\eta < 0.1$	x: 0.029 m $\eta = 13.0$	PASSA $\eta = 13.0$
N64/N70	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 1.6$	x: 0.029 m $\eta = 7.0$	x: 0.029 m $\eta = 6.6$	$\eta = 0.3$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 12.9$	$\eta = 2.1$	$\eta < 0.1$	x: 0.029 m $\eta = 12.6$	PASSA $\eta = 12.9$
N65/N71	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 14.2$	x: 0.029 m $\eta = 7.9$	x: 0.029 m $\eta = 5.4$	$\eta = 0.3$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 19.5$	$\eta = 1.1$	$\eta < 0.1$	x: 0.029 m $\eta = 20.9$	PASSA $\eta = 20.9$
N25/N61	$\lambda \leq 200.0$ Passa	$\eta = 1.3$	$\eta = 0.7$	x: 0 m $\eta = 13.2$	x: 0 m $\eta = 30.2$	x: 0 m $\eta = 3.7$	x: 0 m $\eta = 3.1$	x: 0 m $\eta = 42.9$	$\eta = 8.8$	$\eta < 0.1$	x: 0 m $\eta = 44.9$	PASSA $\eta = 44.9$
N61/N21	$\lambda \leq 200.0$ Passa	$\eta = 0.6$	$\eta = 1.6$	x: 0 m $\eta = 20.3$	x: 0 m $\eta = 14.5$	x: 0 m $\eta = 3.2$	x: 0 m $\eta = 4.1$	x: 0 m $\eta = 35.0$	$\eta = 5.3$	$\eta < 0.1$	x: 0 m $\eta = 34.1$	PASSA $\eta = 35.0$
N72/N101	$\lambda \leq 200.0$ Passa	$\eta = 0.4$	$\eta = 0.2$	x: 0 m $\eta = 8.2$	x: 0 m $\eta = 13.7$	$\eta = 0.8$	x: 0 m $\eta = 0.9$	x: 0 m $\eta = 20.7$	$\eta = 7.8$	$\eta < 0.1$	x: 0 m $\eta = 21.0$	PASSA $\eta = 21.0$
N101/N66	$\lambda \leq 200.0$ Passa	$\eta = 0.9$	$\eta = 0.3$	x: 0 m $\eta = 6.1$	x: 0 m $\eta = 2.2$	$\eta = 0.2$	x: 0 m $\eta = 0.5$	x: 0 m $\eta = 8.7$	$\eta = 4.2$	$\eta < 0.1$	x: 0 m $\eta = 9.8$	PASSA $\eta = 9.8$
N73/N100	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.4$	x: 0 m $\eta = 8.9$	x: 0 m $\eta = 5.8$	$\eta = 0.4$	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 12.5$	$\eta = 6.1$	$\eta < 0.1$	x: 0.8 m $\eta = 12.8$	PASSA $\eta = 12.8$
N100/N67	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.7$	x: 0 m $\eta = 4.1$	x: 0 m $\eta = 2.3$	$\eta = 0.1$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 5.1$	$\eta = 3.7$	$\eta < 0.1$	x: 0 m $\eta = 6.4$	PASSA $\eta = 6.4$
N74/N99	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 2.0$	x: 0 m $\eta = 7.7$	x: 0.8 m $\eta = 4.5$	$\eta = 0.4$	x: 0 m $\eta = 0.8$	x: 0.8 m $\eta = 12.1$	$\eta = 3.6$	$\eta < 0.1$	x: 0 m $\eta = 12.6$	PASSA $\eta = 12.6$
N99/N68	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 1.7$	x: 0.955 m $\eta = 3.0$	x: 0 m $\eta = 2.0$	$\eta = 0.1$	x: 0.955 m $\eta = 0.2$	x: 0.955 m $\eta = 4.5$	$\eta = 2.4$	$\eta < 0.1$	x: 0.955 m $\eta = 5.0$	PASSA $\eta = 5.0$
N62/N96	$\lambda \leq 200.0$ Passa	$\eta = 0.8$	$\eta = 0.9$	x: 0 m $\eta = 13.5$	x: 0.475 m $\eta = 11.9$	x: 0 m $\eta = 2.9$	x: 0 m $\eta = 3.3$	x: 0 m $\eta = 21.4$	$\eta = 3.1$	$\eta < 0.1$	x: 0 m $\eta = 21.2$	PASSA $\eta = 21.4$
N96/N55	$\lambda \leq 200.0$ Passa	$\eta = 0.5$	$\eta = 0.7$	x: 0 m $\eta = 12.8$	x: 0.151 m $\eta = 7.2$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 4.3$	x: 0 m $\eta = 14.6$	N.A. ⁽²⁾	N.A. ⁽³⁾	x: 0 m $\eta = 4.3$	PASSA $\eta = 14.6$
N25/N62	$\lambda \leq 200.0$ Passa	$\eta = 1.4$	$\eta = 0.7$	x: 0 m $\eta = 12.8$	x: 0 m $\eta = 30.2$	x: 0 m $\eta = 3.8$	x: 0 m $\eta = 3.1$	x: 0 m $\eta = 41.8$	$\eta = 7.6$	$\eta < 0.1$	x: 0 m $\eta = 44.5$	PASSA $\eta = 44.5$
N97/N78	$\lambda \leq 200.0$ Passa	$\eta = 0.3$	$\eta = 0.3$	x: 0 m $\eta = 3.5$	x: 0.951 m $\eta = 9.8$	$\eta = 0.4$	x: 0 m $\eta = 0.4$	x: 0.951 m $\eta = 12.6$	$\eta = 2.9$	$\eta < 0.1$	x: 0.951 m $\eta = 14.0$	PASSA $\eta = 14.0$
N72/N97	$\lambda \leq 200.0$ Passa	$\eta = 0.3$	$\eta = 0.2$	x: 0 m $\eta = 7.2$	x: 0 m $\eta = 13.7$	$\eta = 0.9$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 18.9$	$\eta = 7.0$	$\eta < 0.1$	x: 0 m $\eta = 20.0$	PASSA $\eta = 20.0$
N98/N79	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 0.8$	x: 0 m $\eta = 3.1$	x: 0.951 m $\eta = 6.2$	$\eta = 0.4$	x: 0 m $\eta = 0.3$	x: 0.951 m $\eta = 9.2$	$\eta = 2.2$	$\eta < 0.1$	x: 0.951 m $\eta = 9.7$	PASSA $\eta = 9.7$
N74/N98	$\lambda \leq 200.0$ Passa	$\eta < 0.1$	$\eta = 0.5$	x: 0 m $\eta = 6.0$	x: 0.8 m $\eta = 4.4$	$\eta = 0.3$	x: 0 m $\eta = 0.7$	x: 0.8 m $\eta = 10.1$	$\eta = 3.4$	$\eta < 0.1$	x: 0.8 m $\eta = 9.9$	PASSA $\eta = 10.1$
N7/N110	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 2.2$	x: 0.179 m $\eta = 0.8$	x: 0.179 m $\eta = 62.2$	x: 0.179 m $\eta = 25.2$	$\eta = 13.1$	$\eta = 6.8$	x: 0.179 m $\eta = 85.9$	$\eta = 16.7$	$\eta < 0.1$	x: 0.179 m $\eta = 89.8$	PASSA $\eta = 89.8$
N110/N109	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.5$	x: 0.026 m $\eta = 1.8$	x: 0.026 m $\eta = 45.4$	x: 0.169 m $\eta = 5.8$	$\eta = 2.1$	$\eta = 6.1$	x: 0.026 m $\eta = 48.0$	$\eta = 11.1$	$\eta < 0.1$	x: 0.026 m $\eta = 63.4$	PASSA $\eta = 63.4$
N109/N108	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 1.9$	x: 0.026 m $\eta = 28.0$	x: 0.026 m $\eta = 1.8$	$\eta = 0.8$	$\eta = 5.4$	x: 0.026 m $\eta = 29.4$	$\eta = 5.5$	$\eta < 0.1$	x: 0.026 m $\eta = 39.9$	PASSA $\eta = 39.9$
N108/N106	$\lambda \leq 200.0$ Passa	x: 0.168 m $\eta = 0.1$	x: 0.026 m $\eta = 1.7$	x: 0.026 m $\eta = 13.5$	x: 0.026 m $\eta = 2.9$	$\eta = 1.1$	$\eta = 4.7$	x: 0.026 m $\eta = 16.9$	N.A. ⁽²⁾	N.A. ⁽³⁾	$\eta = 4.8$	PASSA $\eta = 16.9$
N19/N111	$\lambda \leq 200.0$ Passa	x: 0.288 m $\eta = 1.1$	x: 0.179 m $\eta = 2.0$	x: 0.179 m $\eta = 18.4$	x: 0.179 m $\eta = 27.7$	$\eta = 11.4$	$\eta = 2.5$	x: 0.179 m $\eta = 41.3$	$\eta = 16.1$	$\eta < 0.1$	x: 0.179 m $\eta = 42.3$	PASSA $\eta = 42.3$
N111/N112	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 2.3$	x: 0.026 m $\eta = 11.5$	x: 0.169 m $\eta = 3.9$	$\eta = 1.2$	$\eta = 2.0$	x: 0.026 m $\eta = 14.9$	$\eta = 11.9$	$\eta < 0.1$	x: 0.026 m $\eta = 19.2$	PASSA $\eta = 19.2$
N112/N113	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 2.2$	x: 0.026 m $\eta = 4.8$	x: 0.026 m $\eta = 1.8$	$\eta = 0.3$	$\eta = 1.5$	x: 0.026 m $\eta = 5.9$	$\eta = 10.3$	$\eta < 0.1$	x: 0.026 m $\eta = 12.1$	PASSA $\eta = 12.1$
N113/N107	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.026 m $\eta = 1.9$	x: 0.169 m $\eta = 5.7$	x: 0.169 m $\eta = 2.8$	$\eta = 0.8$	$\eta = 1.4$	x: 0.169 m $\eta = 9.3$	$\eta = 10.3$	$\eta < 0.1$	x: 0.169 m $\eta = 14.3$	PASSA $\eta = 14.3$
N4/N106	$\lambda \leq 200.0$ Passa	x: 0.97 m $\eta = 0.6$	x: 0.029 m $\eta = 2.1$	x: 0.971 m $\eta = 11.8$	x: 0.971 m $\eta = 18.2$	x: 0.971 m $\eta = 2.9$	x: 0.971 m $\eta = 2.8$	x: 0.971 m $\eta = 30.2$	$\eta = 0.9$	$\eta < 0.1$	x: 0.971 m $\eta = 29.7$	PASSA $\eta = 30.2$
N106/N21	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 0.5$	x: 0.029 m $\eta = 1.8$	x: 0.029 m $\eta = 13.3$	x: 0.029 m $\eta = 15.0$	x: 0.029 m $\eta = 3.4$	x: 0.029 m $\eta = 2.7$	x: 0.029 m $\eta = 28.9$	$\eta = 3.6$	$\eta < 0.1$	x: 0.029 m $\eta = 28.2$	PASSA $\eta = 28.9$
N70/N109	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 1.7$	x: 0.971 m $\eta = 3.5$	x: 0.971 m $\eta = 13.2$	$\eta = 0.9$	x: 0.971 m $\eta = 0.3$	x: 0.971 m $\eta = 16.9$	$\eta = 1.2$	$\eta < 0.1$	x: 0.971 m $\eta = 18.7$	PASSA $\eta = 18.7$
N109/N67	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 0.1$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 6.8$	x: 0.029 m $\eta = 1.3$	$\eta = 0.1$	x: 0.333 m $\eta = 1.0$	x: 0.029 m $\eta = 7.4$	$\eta = 4.3$	$\eta < 0.1$	x: 0.029 m $\eta = 9.6$	PASSA $\eta = 9.6$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N71/N110	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 9.2$	x: 0.971 m $\eta = 5.6$	x: 0.971 m $\eta = 11.6$	$\eta = 0.9$	x: 0.971 m $\eta = 0.5$	x: 0.971 m $\eta = 20.4$	$\eta = 0.9$	$\eta < 0.1$	x: 0.971 m $\eta = 22.7$	PASSA $\eta = 22.7$
N110/N68	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 1.2$	x: 0.029 m $\eta = 13.7$	x: 0.029 m $\eta = 1.7$	$\eta = 0.1$	x: 0.333 m $\eta = 2.3$	x: 0.029 m $\eta = 15.4$	$\eta = 2.9$	$\eta < 0.1$	x: 0.029 m $\eta = 19.7$	PASSA $\eta = 19.7$
N104/N111	$\lambda \leq 200.0$ Passa	x: 0.97 m $\eta = 0.6$	x: 0.029 m $\eta = 6.6$	x: 0.971 m $\eta = 9.0$	x: 0.029 m $\eta = 7.6$	$\eta = 0.6$	x: 0.971 m $\eta = 0.8$	x: 0.029 m $\eta = 17.9$	$\eta = 2.7$	$\eta < 0.1$	x: 0.029 m $\eta = 18.5$	PASSA $\eta = 18.5$
N103/N112	$\lambda \leq 200.0$ Passa	x: 0.97 m $\eta = 0.1$	x: 0.029 m $\eta = 0.7$	x: 0.971 m $\eta = 9.7$	x: 0.029 m $\eta = 7.5$	$\eta = 0.6$	x: 0.971 m $\eta = 0.9$	x: 0.029 m $\eta = 16.5$	$\eta = 4.2$	$\eta < 0.1$	x: 0.029 m $\eta = 16.5$	PASSA $\eta = 16.5$
N102/N113	$\lambda \leq 200.0$ Passa	x: 0.97 m $\eta = 0.3$	x: 0.029 m $\eta = 0.2$	x: 0.971 m $\eta = 10.1$	x: 0.029 m $\eta = 8.3$	$\eta = 0.6$	x: 0.971 m $\eta = 0.9$	x: 0.029 m $\eta = 18.1$	$\eta = 5.3$	$\eta < 0.1$	x: 0.029 m $\eta = 17.4$	PASSA $\eta = 18.1$
N22/N107	x: 0.029 m $\lambda \leq 200.0$ Passa	x: 0.971 m $\eta = 2.1$	x: 0.029 m $\eta = 0.5$	x: 0.971 m $\eta = 19.3$	x: 0.971 m $\eta = 13.3$	x: 0.971 m $\eta = 3.0$	x: 0.971 m $\eta = 3.4$	x: 0.971 m $\eta = 32.7$	$\eta = 5.4$	$\eta < 0.1$	x: 0.971 m $\eta = 33.1$	PASSA $\eta = 33.1$
N114/N115	N.A. ⁽⁴⁾	$\eta < 0.1$	N.A. ⁽⁵⁾	x: 0.307 m $\eta = 4.1$	x: 0.307 m $\eta = 2.2$	$\eta = 0.5$	x: 0.307 m $\eta = 0.2$	x: 0.307 m $\eta = 6.3$	$\eta = 1.9$	$\eta < 0.1$	x: 0.307 m $\eta = 6.3$	PASSA $\eta = 6.3$
N114/N92	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.1$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 2.1$	$\eta = 0.1$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 3.9$	$\eta = 3.2$	$\eta < 0.1$	x: 0 m $\eta = 4.7$	PASSA $\eta = 4.7$
N111/N115	$\lambda \leq 200.0$ Passa	x: 0.153 m $\eta < 0.1$	x: 0.029 m $\eta < 0.1$	x: 0.029 m $\eta = 4.8$	x: 0.029 m $\eta = 3.5$	$\eta = 0.5$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 6.4$	$\eta = 2.5$	$\eta < 0.1$	x: 0.029 m $\eta = 6.9$	PASSA $\eta = 6.9$
N116/N117	$\lambda \leq 200.0$ Passa	$\eta = 0.9$	$\eta < 0.1$	x: 0.307 m $\eta = 15.9$	x: 0 m $\eta = 23.1$	$\eta = 2.3$	x: 0.307 m $\eta = 1.8$	x: 0 m $\eta = 36.3$	$\eta = 2.7$	$\eta < 0.1$	x: 0 m $\eta = 36.5$	PASSA $\eta = 36.5$
N118/N119	$\lambda \leq 200.0$ Passa	$\eta = 0.2$	$\eta < 0.1$	x: 0.307 m $\eta = 9.3$	x: 0 m $\eta = 9.2$	$\eta = 0.5$	x: 0.307 m $\eta = 0.3$	x: 0 m $\eta = 17.6$	$\eta = 2.2$	$\eta < 0.1$	x: 0 m $\eta = 16.9$	PASSA $\eta = 17.6$
N121/N91	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta < 0.1$	x: 0 m $\eta = 2.4$	x: 0 m $\eta = 4.4$	$\eta = 0.3$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 6.8$	$\eta = 5.6$	$\eta < 0.1$	x: 0 m $\eta = 8.3$	PASSA $\eta = 8.3$
N116/N60	$\lambda \leq 200.0$ Passa	$\eta = 0.7$	$\eta < 0.1$	x: 0.151 m $\eta = 4.2$	x: 0 m $\eta = 23.1$	$\eta = 3.1$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 25.6$	$\eta = 13.5$	$\eta < 0.1$	x: 0 m $\eta = 32.0$	PASSA $\eta = 32.0$
N118/N90	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta = 0.1$	x: 0.151 m $\eta = 2.4$	x: 0 m $\eta = 9.2$	$\eta = 0.7$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 11.3$	$\eta = 8.8$	$\eta < 0.1$	x: 0 m $\eta = 14.4$	PASSA $\eta = 14.4$
N121/N120	$\lambda \leq 200.0$ Passa	$\eta = 0.1$	$\eta < 0.1$	x: 0.307 m $\eta = 7.2$	x: 0 m $\eta = 4.4$	$\eta = 0.2$	x: 0.307 m $\eta = 0.3$	x: 0.307 m $\eta = 11.1$	$\eta = 2.5$	$\eta < 0.1$	x: 0.307 m $\eta = 11.1$	PASSA $\eta = 11.1$
N112/N120	$\lambda \leq 200.0$ Passa	x: 0.153 m $\eta < 0.1$	x: 0.029 m $\eta < 0.1$	x: 0.029 m $\eta = 8.4$	x: 0.029 m $\eta = 3.0$	$\eta = 0.2$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 10.9$	$\eta = 4.3$	$\eta < 0.1$	x: 0.029 m $\eta = 11.7$	PASSA $\eta = 11.7$
N113/N119	$\lambda \leq 200.0$ Passa	x: 0.153 m $\eta = 0.2$	x: 0.029 m $\eta = 0.1$	x: 0.029 m $\eta = 10.9$	x: 0.153 m $\eta = 4.9$	$\eta = 0.5$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 15.5$	$\eta = 5.9$	$\eta < 0.1$	x: 0.029 m $\eta = 16.1$	PASSA $\eta = 16.1$
N107/N117	$\lambda \leq 200.0$ Passa	x: 0.153 m $\eta = 0.9$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 23.7$	x: 0.153 m $\eta = 6.2$	x: 0.153 m $\eta = 2.3$	x: 0.029 m $\eta = 3.0$	x: 0.029 m $\eta = 26.6$	$\eta = 5.5$	$\eta < 0.1$	x: 0.029 m $\eta = 32.7$	PASSA $\eta = 32.7$
N73/N124	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 0.4$	x: 0 m $\eta = 7.7$	x: 0 m $\eta = 6.0$	$\eta = 0.4$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 11.1$	$\eta = 5.7$	$\eta < 0.1$	x: 0 m $\eta = 11.4$	PASSA $\eta = 11.4$
N124/N125	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	$\eta = 0.6$	x: 0 m $\eta = 4.0$	x: 0.951 m $\eta = 8.4$	$\eta = 0.5$	x: 0 m $\eta = 0.4$	x: 0.951 m $\eta = 12.2$	$\eta = 2.4$	$\eta < 0.1$	x: 0.951 m $\eta = 12.7$	PASSA $\eta = 12.7$
N125/N126	$\lambda \leq 200.0$ Passa	$\eta < 0.1$	$\eta = 0.6$	x: 0 m $\eta = 6.0$	x: 0 m $\eta = 10.8$	$\eta = 0.7$	x: 0 m $\eta = 1.5$	x: 0 m $\eta = 16.3$	$\eta = 1.6$	$\eta < 0.1$	x: 0 m $\eta = 16.4$	PASSA $\eta = 16.4$
N126/N127	$\lambda \leq 200.0$ Passa	x: 0.755 m $\eta < 0.1$	x: 0 m $\eta = 0.9$	x: 0.756 m $\eta = 3.0$	x: 0 m $\eta = 7.7$	$\eta = 0.7$	x: 0 m $\eta = 0.3$	x: 0 m $\eta = 9.9$	$\eta = 3.3$	$\eta < 0.1$	x: 0 m $\eta = 11.0$	PASSA $\eta = 11.0$
N127/N81	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta < 0.1$	x: 0.029 m $\eta = 0.8$	x: 1.305 m $\eta = 5.5$	x: 0.029 m $\eta = 8.1$	$\eta = 0.5$	x: 1.305 m $\eta = 0.4$	x: 0.029 m $\eta = 11.4$	$\eta = 0.8$	$\eta < 0.1$	x: 0.029 m $\eta = 12.1$	PASSA $\eta = 12.1$
N91/N94	$\lambda \leq 200.0$ Passa	x: 0.934 m $\eta = 0.1$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 1.9$	x: 0 m $\eta = 5.6$	$\eta = 0.3$	x: 0 m $\eta = 0.2$	x: 0 m $\eta = 7.5$	$\eta = 2.8$	$\eta < 0.1$	x: 0 m $\eta = 8.0$	PASSA $\eta = 8.0$
N94/N88	$\lambda \leq 200.0$ Passa	x: 1.304 m $\eta < 0.1$	x: 0.029 m $\eta = 0.2$	x: 0.029 m $\eta = 4.3$	x: 0.029 m $\eta = 9.0$	$\eta = 0.5$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 13.3$	$\eta = 1.7$	$\eta < 0.1$	x: 0.029 m $\eta = 13.5$	PASSA $\eta = 13.5$
N108/N66	$\lambda \leq 200.0$ Passa	x: 0.333 m $\eta = 0.9$	x: 0.029 m $\eta = 0.2$	x: 0.029 m $\eta = 5.0$	x: 0.333 m $\eta = 1.0$	$\eta = 0.2$	x: 0.029 m $\eta = 1.4$	x: 0.333 m $\eta = 6.3$	$\eta = 4.3$	$\eta < 0.1$	x: 0.333 m $\eta = 8.2$	PASSA $\eta = 8.2$
N69/N108	$\lambda \leq 200.0$ Passa	x: 0.97 m $\eta = 0.5$	x: 0.029 m $\eta = 0.1$	x: 0.971 m $\eta = 3.4$	x: 0.971 m $\eta = 12.3$	$\eta = 0.8$	x: 0.971 m $\eta = 0.3$	x: 0.971 m $\eta = 15.9$	$\eta = 1.1$	$\eta < 0.1$	x: 0.971 m $\eta = 17.7$	PASSA $\eta = 17.7$
<p>Notação:</p> <p>λ: Limitação do índice de esbeltez</p> <p>N_t: Resistência à tração</p> <p>N_c: Resistência à compressão</p> <p>M_x: Resistência à flexão eixo X</p> <p>M_y: Resistência à flexão eixo Y</p> <p>V_x: Resistência ao esforço cortante X</p> <p>V_y: Resistência ao esforço cortante Y</p> <p>NM_xM_y: Resistência ao esforço axial e flexão combinados</p> <p>T: Resistência à torção</p> <p>NMVT: Resistência ao momento de torção, força axial, momento fletor e cortante</p> <p>$\sigma \tau f$: Resistência a interações de esforços e momento de torção</p> <p>x: Distância à origem da barra</p> <p>η: Coeficiente de aproveitamento (%)</p> <p>N.A.: Não aplicável</p> <p>Verificações desnecessárias para o tipo de perfil (N.A.):</p> <p>⁽¹⁾ A verificação não será executada, já que não existe esforço axial de tração.</p> <p>⁽²⁾ A verificação não é necessária, já que não existe momento torsor.</p> <p>⁽³⁾ Não há interação entre a força axial, momento fletor, esforço cortante e momento torsor. Portanto, a verificação não é necessária.</p> <p>⁽⁴⁾ A verificação não procede, já que não há força axial de compressão.</p> <p>⁽⁵⁾ A verificação não será executada, já que não existe esforço axial de compressão.</p>												



c) Escada: pavimento técnico ao pavimento terraço

Barras	VERIFICAÇÕES (ABNT NBR 14762)													Estado
	b/t	λ	N_t	N_c	M_x	M_y	V_x	V_y	$M_x V_y$	$M_y V_x$	$N_c M_x M_y$	$N_t M_x M_y$	M_t	
N1/N2	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$\eta = 3.1$	x: 0 m $\eta = 11.3$	x: 1.475 m $\eta = 51.0$	x: 1.475 m $\eta = 3.8$	$\eta = 2.3$	x: 0 m $\eta = 0.9$	x: 1.475 m $\eta = 26.2$	x: 1.475 m $\eta = 62.7$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 62.7$
N11/N12	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.2$	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 3.7$	x: 0 m $\eta = 32.0$	x: 0 m $\eta = 3.1$	$\eta = 0.3$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 10.3$	N.A. ⁽⁵⁾	x: 0 m $\eta = 35.9$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 35.9$
N17/N18	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 4.6$	x: 0 m $\eta = 40.3$	x: 0 m $\eta = 3.4$	$\eta = 0.5$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 16.3$	N.A. ⁽⁵⁾	x: 0 m $\eta = 22.3$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 40.3$
N15/N16	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 3.8$	x: 0 m $\eta = 32.9$	x: 0 m $\eta = 3.1$	$\eta = 0.3$	x: 0 m $\eta = 0.1$	x: 0 m $\eta = 10.9$	N.A. ⁽⁵⁾	x: 0 m $\eta = 14.1$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 32.9$
N13/N14	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 10.9$	x: 1.475 m $\eta = 48.2$	x: 1.475 m $\eta = 3.7$	$\eta = 1.9$	x: 0 m $\eta = 0.9$	x: 1.475 m $\eta = 23.3$	N.A. ⁽⁵⁾	x: 1.475 m $\eta = 36.0$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 48.2$
N19/N20	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 1.475 m $\eta = 3.0$	x: 1.475 m $\eta = 26.4$	x: 1.475 m $\eta = 2.9$	$\eta = 0.1$	x: 1.475 m $\eta = 0.1$	x: 1.475 m $\eta = 7.0$	N.A. ⁽⁵⁾	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 26.4$
N23/N24	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta < 0.1$	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 1.475 m $\eta = 2.9$	x: 1.475 m $\eta = 25.9$	x: 1.475 m $\eta = 2.8$	$\eta = 0.1$	x: 1.475 m $\eta = 0.1$	x: 1.475 m $\eta = 6.8$	N.A. ⁽⁵⁾	x: 1.475 m $\eta = 28.9$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 28.9$
N21/N22	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 300.0$ $\lambda_{yy} \leq 300.0$ Passa	$\eta = 0.2$	$N_{cSd} = 0.00$ N.A. ⁽⁴⁾	x: 0 m $\eta = 5.5$	x: 1.475 m $\eta = 43.8$	x: 1.475 m $\eta = 3.5$	$\eta = 0.7$	x: 0 m $\eta = 0.2$	x: 1.475 m $\eta = 19.3$	N.A. ⁽⁵⁾	x: 1.475 m $\eta = 44.7$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 44.7$
N1/N33	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$\eta = 1.1$	$\eta = 3.2$	$M_{Sd} = 0.00$ N.A. ⁽⁶⁾	$M_{Sd} = 0.00$ N.A. ⁽⁶⁾	$\eta = 4.5$	x: 0.15 m $\eta = 2.9$	N.A. ⁽⁷⁾	N.A. ⁽⁷⁾	N.A. ⁽⁵⁾	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 4.5$
N2/N34	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	$\eta = 5.5$	$M_{Sd} = 0.00$ N.A. ⁽⁶⁾	$M_{Sd} = 0.00$ N.A. ⁽⁶⁾	$\eta = 6.2$	x: 0.15 m $\eta = 2.6$	N.A. ⁽⁷⁾	N.A. ⁽⁷⁾	N.A. ⁽⁵⁾	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 6.2$
N43/N22	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 5.5$	x: 0.227 m $\eta = 5.7$	x: 0.227 m $\eta = 7.8$	$\eta = 1.3$	x: 0 m $\eta = 5.7$	x: 0.227 m $\eta = 0.6$	x: 0.227 m $\eta = 0.6$	x: 0.227 m $\eta = 17.9$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 17.9$
N22/N24	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 3.1$	x: 0.331 m $\eta = 6.6$	x: 0.331 m $\eta = 14.6$	$\eta = 2.0$	x: 0 m $\eta = 3.4$	x: 0.331 m $\eta = 0.5$	x: 0.331 m $\eta = 2.1$	x: 0.331 m $\eta = 24.2$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 24.2$
N24/N20	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.8$	x: 0.331 m $\eta = 10.3$	x: 0 m $\eta = 9.1$	$\eta = 2.0$	x: 0 m $\eta = 2.6$	x: 0.331 m $\eta = 1.1$	x: 0 m $\eta = 0.9$	x: 0.331 m $\eta = 19.9$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 19.9$
N20/N14	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.5$	x: 0.331 m $\eta = 12.8$	x: 0 m $\eta = 16.4$	$\eta = 2.0$	x: 0 m $\eta = 1.7$	x: 0.331 m $\eta = 1.7$	x: 0 m $\eta = 2.7$	x: 0 m $\eta = 29.0$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 29.0$
N14/N16	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.2$	x: 0 m $\eta = 12.6$	x: 0 m $\eta = 31.4$	$\eta = 2.7$	x: 0.331 m $\eta = 1.4$	x: 0 m $\eta = 1.6$	x: 0 m $\eta = 9.9$	x: 0 m $\eta = 39.2$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 39.2$
N16/N18	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 10.6$	x: 0 m $\eta = 16.0$	$\eta = 2.7$	x: 0.331 m $\eta = 2.2$	x: 0 m $\eta = 1.2$	x: 0 m $\eta = 2.6$	x: 0 m $\eta = 22.0$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 22.0$
N18/N12	x: 0.331 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 7.4$	x: 0.331 m $\eta = 17.6$	$\eta = 2.7$	x: 0.331 m $\eta = 3.1$	x: 0 m $\eta = 0.6$	x: 0.331 m $\eta = 3.2$	x: 0.331 m $\eta = 19.7$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 19.7$
N12/N2	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 3.0$	x: 0.331 m $\eta = 34.2$	$\eta = 2.9$	x: 0.331 m $\eta = 3.9$	x: 0 m $\eta = 0.2$	x: 0.331 m $\eta = 11.7$	x: 0.331 m $\eta = 37.0$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 37.0$
N44/N21	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 5.4$	x: 0.227 m $\eta = 4.6$	x: 0.227 m $\eta = 9.9$	$\eta = 1.7$	x: 0 m $\eta = 4.6$	x: 0.227 m $\eta = 0.4$	x: 0.227 m $\eta = 1.0$	x: 0.227 m $\eta = 18.8$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 18.8$
N21/N23	x: 0 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 3.2$	x: 0.331 m $\eta = 5.5$	x: 0 m $\eta = 22.6$	$\eta = 2.8$	x: 0 m $\eta = 2.9$	x: 0.331 m $\eta = 0.4$	x: 0 m $\eta = 5.2$	x: 0 m $\eta = 26.6$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 26.6$
N23/N19	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 3.0$	x: 0.331 m $\eta = 8.5$	x: 0 m $\eta = 12.4$	$\eta = 2.8$	x: 0 m $\eta = 2.1$	x: 0.331 m $\eta = 0.8$	x: 0 m $\eta = 1.6$	x: 0.331 m $\eta = 21.9$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 21.9$
N19/N13	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	$N_{tSd} = 0.00$ N.A. ⁽¹⁾	x: 0 m $\eta = 2.7$	x: 0.331 m $\eta = 10.3$	x: 0.331 m $\eta = 22.4$	$\eta = 2.8$	x: 0 m $\eta = 1.2$	x: 0.331 m $\eta = 1.1$	x: 0.331 m $\eta = 5.1$	x: 0.331 m $\eta = 32.9$	N.A. ⁽²⁾	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 32.9$
N13/N15	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.331 m $\eta = 0.2$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 10.1$	x: 0 m $\eta = 42.7$	$\eta = 4.8$	x: 0.331 m $\eta = 0.8$	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 18.4$	x: 0 m $\eta = 51.6$	x: 0 m $\eta = 36.0$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 51.6$
N15/N17	(b _w /t) ≤ 200 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.331 m $\eta = 0.3$	x: 0 m $\eta = 1.4$	x: 0 m $\eta = 9.0$	x: 0 m $\eta = 26.4$	$\eta = 4.8$	x: 0.331 m $\eta = 1.6$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 7.2$	x: 0 m $\eta = 34.6$	x: 0 m $\eta = 20.0$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 34.6$
N17/N11	x: 0.331 m (b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.331 m $\eta = 0.4$	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 6.6$	x: 0.331 m $\eta = 25.5$	$\eta = 4.8$	x: 0.331 m $\eta = 2.5$	x: 0 m $\eta = 0.5$	x: 0.331 m $\eta = 6.7$	x: 0.331 m $\eta = 28.8$	x: 0.331 m $\eta = 28.0$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 28.8$
N11/N1	(b _w /t) ≤ 90 Passa	$\lambda_{xx} \leq 200.0$ $\lambda_{yy} \leq 200.0$ Passa	x: 0.331 m $\eta = 0.5$	x: 0 m $\eta = 0.8$	x: 0 m $\eta = 3.0$	x: 0.331 m $\eta = 49.0$	$\eta = 5.7$	x: 0.331 m $\eta = 3.3$	x: 0 m $\eta = 0.2$	x: 0.331 m $\eta = 24.3$	x: 0.331 m $\eta = 18.2$	x: 0.331 m $\eta = 50.1$	$M_{tSd} = 0.00$ N.A. ⁽³⁾	PASSA $\eta = 50.1$



Barras	VERIFICAÇÕES (ABNT NBR 14762)												Estado
	b/t	λ	N _t	N _c	M _x	M _y	V _x	V _y	M _x V _y	M _y V _x	N _c M _x M _y	N _t M _x M _y	
Notação: b/t: Valores máximos da relação comprimento-espessura λ : Limitação de esbeltez N _t : Resistência à tração N _c : Resistência à compressão M _x : Resistência à flexão eixo X M _y : Resistência à flexão eixo Y V _x : Resistência ao esforço cortante X V _y : Resistência ao esforço cortante Y M _x V _y : Resistência ao momento fletor X e esforço cortante Y combinados M _y V _x : Resistência ao momento fletor Y e esforço cortante X combinados N _c M _x M _y : Resistência à flexo-compressão N _t M _x M _y : Resistência à flexo-tração M _t : Resistência à torção x: Distância à origem da barra η : Coeficiente de aproveitamento (%) N.A.: Não aplicável													
Verificações desnecessárias para o tipo de perfil (N.A.): (1) A verificação não será executada, já que não existe esforço axial de tração. (2) Não há interação entre o esforço axial de tração e o momento fletor para nenhuma combinação. Assim a verificação não será executada. (3) A verificação não é necessária, já que não existe momento torsor. (4) A verificação não será executada, já que não existe esforço axial de compressão. (5) Não há interação entre o esforço axial de compressão e o momento fletor para nenhuma combinação. Assim a verificação não será executada. (6) A verificação não será executada, já que não existe momento fletor. (7) Não há interação entre o momento fletor e o esforço cortante para nenhuma combinação. Assim a verificação não será executada.													

Barras	VERIFICAÇÕES (ABNT NBR 8800)										Estado	
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT		$\sigma \tau f$
N22/N35	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.178 m $\eta = 3.0$	x: 0.178 m $\eta = 25.0$	x: 0.178 m $\eta = 26.4$	$\eta = 10.1$	$\eta = 1.0$	x: 0.178 m $\eta = 52.9$	$\eta = 9.2$	$\eta < 0.1$	x: 0.178 m $\eta = 52.4$	PASSA $\eta = 52.9$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N35/N36	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 22.2$	x: 0.195 m $\eta = 3.8$	$\eta = 0.5$	$\eta = 1.2$	x: 0 m $\eta = 24.3$	$\eta = 6.0$	$\eta < 0.1$	x: 0 m $\eta = 31.2$	PASSA $\eta = 31.2$
N36/N37	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 0.9$	x: 0 m $\eta = 17.0$	x: 0.195 m $\eta = 2.0$	$\eta = 0.3$	$\eta = 1.4$	x: 0 m $\eta = 18.1$	$\eta = 2.2$	$\eta < 0.1$	x: 0 m $\eta = 24.0$	PASSA $\eta = 24.0$
N37/N38	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 10.7$	x: 0.195 m $\eta = 7.3$	$\eta = 1.9$	$\eta = 1.6$	x: 0.195 m $\eta = 11.8$	$\eta = 1.8$	$\eta < 0.1$	x: 0 m $\eta = 15.6$	PASSA $\eta = 15.6$
N2/N7	$\lambda \leq 200.0$ Passa	x: 0.315 m $\eta = 1.3$	x: 0.178 m $\eta = 0.5$	x: 0.178 m $\eta = 36.7$	x: 0.178 m $\eta = 26.5$	$\eta = 10.6$	$\eta = 3.6$	x: 0.178 m $\eta = 63.5$	$\eta = 20.3$	x: 0.178 m $\eta = 43.4$	x: 0.178 m $\eta = 62.2$	PASSA $\eta = 63.5$
N7/N6	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 28.3$	x: 0.195 m $\eta = 3.6$	$\eta = 0.8$	$\eta = 3.3$	x: 0 m $\eta = 29.1$	$\eta = 16.2$	$\eta < 0.1$	x: 0 m $\eta = 39.4$	PASSA $\eta = 39.4$
N6/N5	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 16.3$	x: 0.195 m $\eta = 2.2$	$\eta = 0.4$	$\eta = 3.0$	x: 0 m $\eta = 17.6$	$\eta = 12.9$	$\eta < 0.1$	x: 0 m $\eta = 24.5$	PASSA $\eta = 24.5$
N5/N3	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta < 0.1$	x: 0 m $\eta = 0.4$	x: 0.195 m $\eta = 6.0$	x: 0.195 m $\eta = 12.8$	$\eta = 3.1$	$\eta = 2.7$	x: 0.195 m $\eta = 19.0$	$\eta = 10.7$	$\eta < 0.1$	x: 0.195 m $\eta = 21.1$	PASSA $\eta = 21.1$
N14/N25	$\lambda \leq 200.0$ Passa	x: 0.323 m $\eta = 0.2$	x: 0.178 m $\eta = 1.7$	x: 0.178 m $\eta = 42.6$	x: 0.178 m $\eta = 1.2$	$\eta = 0.5$	$\eta = 4.1$	x: 0.178 m $\eta = 44.5$	$\eta = 17.4$	$\eta < 0.1$	x: 0.178 m $\eta = 59.5$	PASSA $\eta = 59.5$
N25/N26	$\lambda \leq 200.0$ Passa	x: 0.196 m $\eta = 0.1$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 35.5$	x: 0.196 m $\eta = 0.7$	$\eta = 0.3$	$\eta = 4.2$	x: 0 m $\eta = 36.6$	$\eta = 11.4$	$\eta < 0.1$	x: 0 m $\eta = 49.9$	PASSA $\eta = 49.9$
N26/N27	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta = 0.1$	x: 0 m $\eta = 1.7$	x: 0 m $\eta = 24.7$	x: 0 m $\eta = 0.2$	$\eta < 0.1$	$\eta = 4.2$	x: 0 m $\eta = 25.7$	$\eta = 5.7$	$\eta < 0.1$	x: 0 m $\eta = 35.2$	PASSA $\eta = 35.2$
N27/N28	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta < 0.1$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 14.0$	x: 0.195 m $\eta = 4.5$	$\eta = 1.3$	$\eta = 4.3$	x: 0 m $\eta = 15.6$	$\eta = 0.5$	$\eta < 0.1$	x: 0 m $\eta = 20.9$	PASSA $\eta = 20.9$
N1/N10	$\lambda \leq 200.0$ Passa	x: 0.315 m $\eta = 1.0$	x: 0.178 m $\eta = 0.8$	x: 0.178 m $\eta = 36.2$	x: 0.178 m $\eta = 22.4$	$\eta = 9.0$	$\eta = 3.7$	x: 0.178 m $\eta = 54.2$	$\eta = 20.8$	x: 0.178 m $\eta = 42.7$	x: 0.178 m $\eta = 55.4$	PASSA $\eta = 55.4$
N10/N9	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 28.0$	x: 0.195 m $\eta = 2.9$	$\eta = 0.7$	$\eta = 3.3$	x: 0 m $\eta = 28.7$	$\eta = 16.4$	$\eta < 0.1$	x: 0 m $\eta = 39.0$	PASSA $\eta = 39.0$
N9/N8	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 16.2$	x: 0.195 m $\eta = 2.0$	$\eta = 0.4$	$\eta = 3.0$	x: 0 m $\eta = 17.1$	$\eta = 12.9$	$\eta < 0.1$	x: 0 m $\eta = 24.2$	PASSA $\eta = 24.2$
N8/N4	$\lambda \leq 200.0$ Passa	x: 0.195 m $\eta < 0.1$	x: 0 m $\eta = 0.4$	x: 0.195 m $\eta = 6.0$	x: 0.195 m $\eta = 12.5$	$\eta = 3.1$	$\eta = 2.7$	x: 0.195 m $\eta = 18.4$	$\eta = 10.7$	$\eta < 0.1$	x: 0.195 m $\eta = 20.6$	PASSA $\eta = 20.6$
N13/N29	$\lambda \leq 200.0$ Passa	x: 0.323 m $\eta = 0.1$	x: 0.178 m $\eta = 1.8$	x: 0.178 m $\eta = 42.6$	x: 0.178 m $\eta = 1.1$	$\eta = 0.5$	$\eta = 4.1$	x: 0.178 m $\eta = 44.3$	$\eta = 18.0$	$\eta < 0.1$	x: 0.178 m $\eta = 59.6$	PASSA $\eta = 59.6$
N29/N30	$\lambda \leq 200.0$ Passa	x: 0.196 m $\eta = 0.1$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 35.6$	x: 0.196 m $\eta = 0.6$	$\eta = 0.2$	$\eta = 4.2$	x: 0 m $\eta = 36.9$	$\eta = 11.5$	$\eta < 0.1$	x: 0 m $\eta = 50.0$	PASSA $\eta = 50.0$
N30/N31	$\lambda \leq 200.0$ Passa	x: 0.196 m $\eta = 0.1$	x: 0 m $\eta = 1.8$	x: 0 m $\eta = 24.8$	x: 0 m $\eta = 0.2$	$\eta < 0.1$	$\eta = 4.2$	x: 0 m $\eta = 25.8$	$\eta = 5.7$	$\eta < 0.1$	x: 0 m $\eta = 35.3$	PASSA $\eta = 35.3$
N31/N32	$\lambda \leq 200.0$ Passa	x: 0.194 m $\eta < 0.1$	x: 0 m $\eta = 2.0$	x: 0 m $\eta = 13.9$	x: 0.194 m $\eta = 4.5$	$\eta = 1.3$	$\eta = 4.3$	x: 0 m $\eta = 15.5$	$\eta = 0.5$	$\eta < 0.1$	x: 0 m $\eta = 20.8$	PASSA $\eta = 20.8$
N21/N39	$\lambda \leq 200.0$ Passa	x: 0.332 m $\eta = 0.1$	x: 0.178 m $\eta = 2.7$	x: 0.178 m $\eta = 24.6$	x: 0.178 m $\eta = 22.3$	$\eta = 8.5$	$\eta = 0.9$	x: 0.178 m $\eta = 43.5$	$\eta = 9.7$	$\eta < 0.1$	x: 0.178 m $\eta = 43.3$	PASSA $\eta = 43.5$
N39/N40	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.0$	x: 0 m $\eta = 22.1$	x: 0.195 m $\eta = 3.2$	$\eta = 0.4$	$\eta = 1.2$	x: 0 m $\eta = 23.6$	$\eta = 6.2$	$\eta < 0.1$	x: 0 m $\eta = 30.8$	PASSA $\eta = 30.8$
N40/N41	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 0.9$	x: 0 m $\eta = 17.0$	x: 0.195 m $\eta = 1.8$	$\eta = 0.3$	$\eta = 1.4$	x: 0 m $\eta = 17.9$	$\eta = 2.2$	$\eta < 0.1$	x: 0 m $\eta = 24.0$	PASSA $\eta = 24.0$
N41/N42	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0 m $\eta = 1.1$	x: 0 m $\eta = 10.7$	x: 0.195 m $\eta = 7.0$	$\eta = 1.8$	$\eta = 1.6$	x: 0 m $\eta = 11.4$	$\eta = 1.8$	$\eta < 0.1$	x: 0 m $\eta = 15.5$	PASSA $\eta = 15.5$
N25/N7	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 7.7$	x: 1.29 m $\eta = 5.4$	x: 0.029 m $\eta = 7.6$	$\eta = 0.5$	x: 1.29 m $\eta = 0.4$	x: 1.29 m $\eta = 15.2$	$\eta = 0.3$	$\eta < 0.1$	x: 0.029 m $\eta = 15.7$	PASSA $\eta = 15.7$
N35/N25	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 6.3$	x: 0.029 m $\eta = 6.5$	x: 0.029 m $\eta = 4.1$	$\eta = 0.4$	x: 0.029 m $\eta = 0.6$	x: 0.029 m $\eta = 13.3$	$\eta = 2.2$	$\eta < 0.1$	x: 0.029 m $\eta = 14.8$	PASSA $\eta = 14.8$
N36/N26	$\lambda \leq 200.0$ Passa	x: 0.958 m $\eta = 0.1$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 4.6$	x: 0.029 m $\eta = 4.3$	$\eta = 0.4$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 8.9$	$\eta = 3.7$	$\eta < 0.1$	x: 0.029 m $\eta = 8.6$	PASSA $\eta = 8.9$
N26/N6	$\lambda \leq 200.0$ Passa	x: 1.288 m $\eta = 0.1$	x: 0.029 m $\eta = 0.5$	x: 1.289 m $\eta = 4.1$	x: 0.029 m $\eta = 8.3$	$\eta = 0.5$	x: 1.289 m $\eta = 0.3$	x: 0.029 m $\eta = 11.4$	$\eta = 0.5$	$\eta < 0.1$	x: 0.029 m $\eta = 12.1$	PASSA $\eta = 12.1$
N27/N5	N.A. ⁽²⁾	x: 1.288 m $\eta = 1.4$	N.A. ⁽³⁾	x: 1.289 m $\eta = 3.2$	x: 0.029 m $\eta = 9.0$	$\eta = 0.4$	x: 1.289 m $\eta = 0.3$	x: 0.029 m $\eta = 12.3$	$\eta = 0.6$	$\eta < 0.1$	x: 0.029 m $\eta = 14.1$	PASSA $\eta = 14.1$
N37/N27	N.A. ⁽²⁾	x: 0.958 m $\eta = 0.7$	N.A. ⁽³⁾	x: 0.029 m $\eta = 3.6$	x: 0.029 m $\eta = 4.4$	$\eta = 0.3$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 8.4$	$\eta = 4.2$	$\eta < 0.1$	x: 0.029 m $\eta = 8.6$	PASSA $\eta = 8.6$
N39/N29	$\lambda \leq 200.0$ Passa	x: 0.958 m $\eta = 0.4$	x: 0.029 m $\eta = 5.3$	x: 0.029 m $\eta = 5.5$	x: 0.029 m $\eta = 4.6$	$\eta = 0.4$	x: 0.029 m $\eta = 0.5$	x: 0.029 m $\eta = 11.3$	$\eta = 2.2$	$\eta < 0.1$	x: 0.029 m $\eta = 12.0$	PASSA $\eta = 12.0$
N29/N10	$\lambda \leq 200.0$ Passa	x: 1.289 m $\eta = 0.4$	x: 0.029 m $\eta = 6.5$	x: 1.29 m $\eta = 4.5$	x: 0.029 m $\eta = 7.9$	$\eta = 0.5$	x: 1.29 m $\eta = 0.3$	x: 1.29 m $\eta = 13.8$	$\eta = 0.3$	$\eta < 0.1$	x: 1.29 m $\eta = 14.4$	PASSA $\eta = 14.4$
N30/N9	$\lambda \leq 200.0$ Passa	x: 1.288 m $\eta = 0.1$	x: 0.029 m $\eta = 0.4$	x: 1.289 m $\eta = 3.5$	x: 0.029 m $\eta = 8.3$	$\eta = 0.5$	x: 1.289 m $\eta = 0.3$	x: 0.029 m $\eta = 10.3$	$\eta = 0.5$	$\eta < 0.1$	x: 0.029 m $\eta = 11.6$	PASSA $\eta = 11.6$
N40/N30	$\lambda \leq 200.0$ Passa	x: 0.958 m $\eta = 0.1$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 4.0$	x: 0.029 m $\eta = 4.5$	$\eta = 0.4$	x: 0.029 m $\eta = 0.4$	x: 0.029 m $\eta = 7.9$	$\eta = 3.7$	$\eta < 0.1$	x: 0.029 m $\eta = 7.7$	PASSA $\eta = 7.9$
N41/N31	$\lambda \leq 200.0$ Passa	x: 0.959 m $\eta = 0.7$	x: 0.029 m $\eta < 0.1$	x: 0.029 m $\eta = 3.2$	x: 0.029 m $\eta = 4.3$	$\eta = 0.3$	x: 0.029 m $\eta = 0.3$	x: 0.029 m $\eta = 7.3$	$\eta = 4.3$	$\eta < 0.1$	x: 0.029 m $\eta = 7.9$	PASSA $\eta = 7.9$
N31/N8	$\lambda \leq 200.0$ Passa	x: 1.287 m $\eta = 1.4$	x: 0.029 m $\eta = 0.1$	x: 1.288 m $\eta = 2.8$	x: 0.029 m $\eta = 9.0$	$\eta = 0.4$	x: 1.288 m $\eta = 0.2$	x: 0.029 m $\eta = 11.3$	$\eta = 0.6$	$\eta < 0.1$	x: 0.029 m $\eta = 13.7$	PASSA $\eta = 13.7$



Barras	VERIFICAÇÕES (ABNT NBR 8800)											Estado
	λ	N_t	N_c	M_x	M_y	V_x	V_y	NM_xM_y	T	NMVT	$\sigma \tau f$	
N28/N3	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 3.6$	x: 1.289 m $\eta = 17.6$	x: 1.289 m $\eta = 16.0$	x: 1.289 m $\eta = 3.6$	x: 1.289 m $\eta = 3.6$	x: 1.289 m $\eta = 34.4$	$\eta = 0.4$	$\eta < 0.1$	x: 1.289 m $\eta = 33.1$	PASSA $\eta = 34.4$
N38/N28	$\lambda \leq 200.0$ Passa	N.A. ⁽¹⁾	x: 0.029 m $\eta = 1.9$	x: 0.959 m $\eta = 10.9$	x: 0.959 m $\eta = 10.5$	x: 0.959 m $\eta = 2.7$	x: 0.959 m $\eta = 2.8$	x: 0.959 m $\eta = 21.2$	$\eta = 4.2$	$\eta < 0.1$	x: 0.959 m $\eta = 20.3$	PASSA $\eta = 21.2$
N32/N4	$\lambda \leq 200.0$ Passa	x: 1.288 m $\eta < 0.1$	x: 0.029 m $\eta = 3.5$	x: 0.029 m $\eta = 17.7$	x: 1.289 m $\eta = 16.0$	x: 1.289 m $\eta = 3.6$	x: 0.029 m $\eta = 3.6$	x: 1.289 m $\eta = 33.4$	$\eta = 0.4$	$\eta < 0.1$	x: 1.289 m $\eta = 32.2$	PASSA $\eta = 33.4$
N42/N32	$\lambda \leq 200.0$ Passa	x: 0.958 m $\eta < 0.1$	x: 0.029 m $\eta = 1.8$	x: 0.959 m $\eta = 11.4$	x: 0.959 m $\eta = 10.5$	x: 0.959 m $\eta = 2.7$	x: 0.959 m $\eta = 2.8$	x: 0.959 m $\eta = 22.0$	$\eta = 4.2$	$\eta < 0.1$	x: 0.959 m $\eta = 21.1$	PASSA $\eta = 22.0$
<p>Notação:</p> <p>λ: Limitação do índice de esbeltez N_t: Resistência à tração N_c: Resistência à compressão M_x: Resistência à flexão eixo X M_y: Resistência à flexão eixo Y V_x: Resistência ao esforço cortante X V_y: Resistência ao esforço cortante Y NM_xM_y: Resistência ao esforço axial e flexão combinados T: Resistência à torção NMVT: Resistência ao momento de torção, força axial, momento fletor e cortante $\sigma \tau f$: Resistência a interações de esforços e momento de torção x: Distância à origem da barra η: Coeficiente de aproveitamento (%) N.A.: Não aplicável</p> <p>Verificações desnecessárias para o tipo de perfil (N.A.):</p> <p>⁽¹⁾ A verificação não será executada, já que não existe esforço axial de tração. ⁽²⁾ A verificação não procede, já que não há força axial de compressão. ⁽³⁾ A verificação não será executada, já que não existe esforço axial de compressão.</p>												