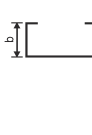
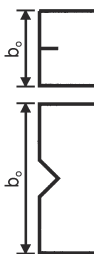


Table 2-5
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
Alclad 3004-H34 Sheet

Table 2-5 ALLOWABLE STRESSES FOR BUILDING TYPE STRUCTURES Alclad 3004-H34 Sheet									
Type of Stress			Type of Member or Element		Sec. 3.4.	Allowable Stress			
TENSION IN BEAMS, extreme fiber, net section	Any tension member		gross section	net section	1	14.5 16	11		
	Flat elements in uniform tension				2	14.5	4.8		
	Round or oval tubes				3	17	5.5		
BEARING	Flat elements in bending in their own plane, symmetric shapes				4	19	6.5		
	On rivets and bolts				5	32	22		
	On flat surfaces and pins and on bolts in slotted holes				6	21	14.5		
	Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress, $S \leq S_1$	S_1	Allowable Stress, $S_1 < S < S_2$	S_2	Allowable Stress, $S \geq S_2$
COMPRESSION IN COLUMNS, axial	All columns			7	—	0	$12.3 - 0.074 \text{ } kL/r$	112	$51100 \text{ } /(kL/r)^2$
					—	0	$4.5 - 0.016 \text{ } kL/r$	185	$51100 \text{ } /(kL/r)^2$
		Flat elements supported on one edge – columns buckling about a symmetry axis			8	12.5	4.0	$14.7 - 0.488 \text{ } b/t$	15
			4.8		3.3	$5.2 - 0.102 \text{ } b/t$	25	$66 \text{ } /(b/t)$	
COMPRESSION IN COLUMN ELEMENTS, gross section		Flat elements supported on one edge – columns not buckling about a symmetry axis			8.1	12.5	4.0	$14.7 - 0.488 \text{ } b/t$	20
					4.8	3.3	$5.2 - 0.102 \text{ } b/t$	34	$1970 \text{ } /(b/t)^2$
	Flat elements supported on both edges			9	12.5	13	$14.7 - 0.153 \text{ } b/t$	48	$352 \text{ } /(b/t)$
					4.8	10	$5.2 - 0.032 \text{ } b/t$	81	$209 \text{ } /(b/t)$
	Flat elements supported on one edge and with stiffener on other edge			9.1	see Part IA Section 3.4.9.1				
Flat elements supported on both edges and with an intermediate stiffener			9.2	see Part IA Section 3.4.9.2					
Curved elements supported on both edges			10	12.5	7.4	$14.2 - 0.536 \text{ } \sqrt{R_b/t}$	280	$3190 \text{ } \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$	
				4.8	5.4	$5.2 - 0.140 \text{ } \sqrt{R_b/t}$	800	$3190 \text{ } \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$	

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b/t < 20$

see Part IA Section 3.4.9.1

see Part IA Section 3.4.9.2

COMPRESSION IN BEAMS, extreme fiber, gross section	11		12.5	25	14.6 – 0.073 L_b/r_y	134	87000 $/(L_b/r_y)^2$
	12		4.8	27	5.3 – 0.016 L_b/r_y	222	87000 $/(L_b/r_y)^2$
			15	47	25.1 – 1.49 $\sqrt{R_b/t}$	132	Same as
			5.5	81	9.2 – 0.389 $\sqrt{R_b/t}$	260	Section 3.4.10
	13		17	16	23.1 – 0.399 $d/\sqrt{L_b}$	39	11400 $/(d/\sqrt{L_b})^2$
			6.5	22	8.1 – 0.083 $d/\sqrt{L_b}$	65	11400 $/(d/\sqrt{L_b})^2$
	14		12.5	175	14.6 – 0.139 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	4860	23600 $/(2L_b S_c/\sqrt{I_y J})$
			4.8	203	5.3 – 0.030 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	13400	23600 $/(2L_b S_c/\sqrt{I_y J})$
	15		12.5	8.0	17.3 – 0.577 b/t	15	130 $/(b/t)$
			4.8	11	6.1 – 0.121 b/t	25	77 $/(b/t)$
COMPRESSION IN BEAM ELEMENTS, (element in uniform compression), gross section	16		12.5	26	17.3 – 0.181 b/t	48	415 $/(b/t)$
			4.8	34	6.1 – 0.038 b/t	81	247 $/(b/t)$
	16.1		15	8.7	16.8 – 0.634 $\sqrt{R_b/t}$	280	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
			5.5	7.2	6.1 – 0.165 $\sqrt{R_b/t}$	800	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
	16.2		see Part IA Section 3.4.16.2				
	16.3		see Part IA Section 3.4.16.3				
	17		17	11	23.1 – 0.607 b/t	25	4930 $/(b/t)^2$
			6.5	14	8.1 – 0.126 b/t	43	4930 $/(b/t)^2$
	18		17	56	23.1 – 0.116 h/t	99	1140 $/(h/t)$
			6.5	74	8.1 – 0.024 h/t	167	678 $/(h/t)$
COMPRESSION IN BEAM ELEMENTS, (element in bending in own plane), gross section	19		17	130	23.1 – 0.050 h/t	229	2640 $/(h/t)$
			6.5	172	8.1 – 0.010 h/t	390	1570 $/(h/t)$
	20		8.5	42	11.7 – 0.078 h/t	100	38700 $/(h/t)^2$
			2.8	57	3.6 – 0.013 h/t	181	38700 $/(h/t)^2$
	21		8.5	71	16.0 – 0.107 a_d/t	100	53200 $/(a_d/t)^2$
			2.8	116	4.9 – 0.018 a_d/t	181	53200 $/(a_d/t)^2$

Table 2-6
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
5005-H14 Sheet and Plate

Table 2-6 ALLOWABLE STRESSES FOR BUILDING TYPE STRUCTURES 5005-H14 Sheet and Plate									
Type of Stress			Type of Member or Element		Sec. 3.4.	Allowable Stress			
TENSION IN BEAMS, extreme fiber, net section	Any tension member		gross section	net section	1	10.5 11	7.5		
	Flat elements in uniform tension				2	10.5	3.0		
	Round or oval tubes				3	12	3.5		
	Flat elements in bending in their own plane, symmetric shapes				4	13.5	3.9		
BEARING	On rivets and bolts				5	22	15		
	On flat surfaces and pins and on bolts in slotted holes				6	14.5	10.5		
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress, $S \leq S_1$	S_1	Allowable Stress, $S_1 < S < S_2$		S_2	Allowable Stress, $S \geq S_2$
COMPRESSION IN COLUMNS, axial	All columns		7	—	0	8.6 — 0.043 kL/r	133	51100 $/(kL/r)^2$	
				—	0	2.7 — 0.077 kL/r	236	51100 $/(kL/r)^2$	
	Flat elements supported on one edge — columns buckling about a symmetry axis		8	9	3.9	10.2 — 0.282 b/t	18	92 $/(b/t)$	
				3.0	2.3	3.1 — 0.048 b/t	33	51 $/(b/t)$	
COMPRESSION IN COLUMN ELEMENTS, gross section	Flat elements supported on one edge — columns not buckling about a symmetry axis		8.1	9	3.9	10.2 — 0.282 b/t	24	1970 $/(b/t)^2$	
				3.0	2.3	3.1 — 0.048 b/t	43	1970 $/(b/t)^2$	
	Flat elements supported on both edges		9	9	12	10.2 — 0.089 b/t	58	293 $/(b/t)$	
				3.0	7	3.1 — 0.015 b/t	104	163 $/(b/t)$	
COMPRESSION IN COLUMN ELEMENTS, gross section	Flat elements supported on one edge and with stiffener on other edge		9.1	see Part IA Section 3.4.9.1					
	Flat elements supported on both edges and with an intermediate stiffener		9.2	see Part IA Section 3.4.9.2					
	Curved elements supported on both edges		10	9	6.9	10.0 — 0.335 $\sqrt{R_o/t}$	390	3190 $/(\frac{R_o}{t}) \left(1 + \sqrt{\frac{R_o/t}{35}} \right)^2$	
				3.0	3.9	3.2 — 0.073 $\sqrt{R_o/t}$	1070	3190 $/(\frac{R_o}{t}) \left(1 + \sqrt{\frac{R_o/t}{35}} \right)^2$	

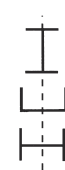
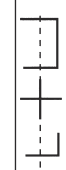
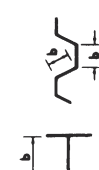
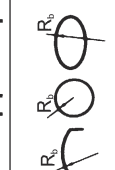
White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_o/t < 20$

COMPRESSION IN BEAMS, extreme fiber, gross section	11		9	26	10.2 – 0.043 L_b/r_y	L_b/r_y	160	87000 $/(L_b/r_y)^2$
			3.0	28	3.2 – 0.0076 L_b/r_y	L_b/r_y	280	87000 $/(L_b/r_y)^2$
	12		10.5	57	17.7 – 0.932 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	167	Same as
			3.5	106	5.6 – 0.203 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	360	Section 3.4.10
	13		12	18	16.0 – 0.230 $d/\sqrt{L_b}$	$d/\sqrt{L_b}$	46	11400 $/(d/\sqrt{L_b})^2$
			3.9	25	4.9 – 0.039 $d/\sqrt{L_b}$	$d/\sqrt{L_b}$	84	11400 $/(d/\sqrt{L_b})^2$
	14		9	186	10.2 – 0.082 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	$\sqrt{2L_b S_c}/\sqrt{I_y J}$	6940	23600 $/(2L_b S_c/\sqrt{I_y J})^2$
			3.0	214	3.2 – 0.015 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	$\sqrt{2L_b S_c}/\sqrt{I_y J}$	21800	23600 $/(2L_b S_c/\sqrt{I_y J})^2$
	15		9	8.8	12.0 – 0.334 b/t	b/t	18	109 $/(b/t)$
			3.0	12	3.7 – 0.057 b/t	b/t	33	60 $/(b/t)$
COMPRESSION IN BEAM ELEMENTS, (element in uniform compression), gross section	16		9	28	12.0 – 0.105 b/t	b/t	58	346 $/(b/t)$
			3.0	38	3.7 – 0.018 b/t	b/t	104	192 $/(b/t)$
	16.1		10.5	8.4	11.8 – 0.396 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	390	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
			3.5	5.7	3.8 – 0.086 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	1070	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
	16.2		see Part IA Section 3.4.16.2					
COMPRESSION IN BEAM ELEMENTS, (element in bending in own plane), gross section	16.3		see Part IA Section 3.4.16.3					
	17		12	12	16.0 – 0.350 b/t	b/t	30	4930 $/(b/t)^2$
			3.9	16	4.9 – 0.059 b/t	b/t	55	4930 $/(b/t)^2$
	18		12	62	16.0 – 0.067 h/t	h/t	119	952 $/(h/t)$
			3.9	85	4.9 – 0.011 h/t	h/t	215	527 $/(h/t)$
SHEAR IN ELEMENTS, gross section	19		12	144	16.0 – 0.029 h/t	h/t	280	2200 $/(h/t)$
			3.9	195	4.9 – 0.0049 h/t	h/t	500	1220 $/(h/t)$
	20		6	46	8.0 – 0.044 h/t	h/t	120	38700 $/(h/t)^2$
			1.7	65	2.2 – 0.0062 h/t	h/t	232	38700 $/(h/t)^2$
	21		6	83	11.0 – 0.061 a_e/t	a_e/t	120	53200 $/(a_e/t)^2$
			1.7	142	3.0 – 0.0085 a_e/t	a_e/t	232	53200 $/(a_e/t)^2$

Table 2-7
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
5005-H34 Sheet and Plate

Table 2-7 ALLOWABLE STRESSES FOR BUILDING TYPE STRUCTURES 5005-H34 Sheet and Plate										
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress		Sec. 3.4.	Type of Member or Element	Allowable Stress, $S_1 < S < S_2$	S_2	Allowable Stress, $S \geq S_2$
	Any tension member	gross section net section		1 9 10.5	7.5					
TENSION IN BEAMS, extreme fiber, net section	Flat elements in uniform tension		2	9	3.0					
	Round or oval tubes		3	10.5	3.5					
	Flat elements in bending in their own plane, symmetric shapes		4	12	3.9					
BEARING	On rivets and bolts		5	21	15					
	On flat surfaces and pins and on bolts in slotted holes		6	13.5	10.5					
COMPRESSION IN COLUMNS, axial	All columns		7	—	0				138	51100 $\sqrt{(kL/r)^2}$
				—	0				236	51100 $\sqrt{(kL/r)^2}$
	Flat elements supported on one edge – columns buckling about a symmetry axis		8	8.5	3.8				19	89 $\sqrt{(b/t)}$
				3.0	2.3				33	51 $\sqrt{(b/t)}$
	Flat elements supported on one edge – columns not buckling about a symmetry axis		8.1	8.5	3.8				25	1970 $\sqrt{(b/t)^2}$
COMPRESSION IN COLUMN ELEMENTS, gross section	Flat elements supported on both edges		9	8.5	12				60	282 $\sqrt{(b/t)}$
				3.0	7				104	163 $\sqrt{(b/t)}$
	Flat elements supported on one edge and with stiffener on other edge		9.1	see Part IA Section 3.4.9.1						
	Flat elements supported on both edges and with an intermediate stiffener		9.2	see Part IA Section 3.4.9.2						
	Curved elements supported on both edges		10	8.5	6.8				420	3190 $\sqrt{\left(\frac{R_b}{t}\right)\left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)}$
			3.0	3.9				1070	3190 $\sqrt{\left(\frac{R_b}{t}\right)\left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)}$	

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b/t < 20$

COMPRESSION IN BEAMS, extreme fiber, gross section	11		8.5	26	9.5 – 0.038 L_b/r_y	166	87000 $/(L_b/r_y)^2$
			3.0	28	3.2 – 0.0076 L_b/r_y	280	87000 $/(L_b/r_y)^2$
	12		10	59	16.4 – 0.847 $\sqrt{R_b/t}$	175	Same as
			3.5	106	5.6 – 0.203 $\sqrt{R_b/t}$	360	Section 3.4.10
	13		11	18	14.8 – 0.206 $d/\sqrt{L_b}$	48	11400 $/(d/\sqrt{L_b})^2$
			3.9	25	4.9 – 0.039 $d/\sqrt{L_b}$	84	11400 $/(d/\sqrt{L_b})^2$
	14		8.5	188	9.5 – 0.073 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	7470	23600 $/(2L_b S_c/\sqrt{I_y J})$
			3.0	214	3.2 – 0.015 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	21800	23600 $/(2L_b S_c/\sqrt{I_y J})$
	15		8.5	9.0	11.2 – 0.298 b/t	19	105 $/(b/t)$
			3.0	12	3.7 – 0.057 b/t	33	60 $/(b/t)$
COMPRESSION IN BEAM ELEMENTS, (element in uniform compression), gross section	16		8.5	29	11.2 – 0.094 b/t	60	333 $/(b/t)$
			3.0	38	3.7 – 0.018 b/t	104	192 $/(b/t)$
	16.1		10	8.3	11.0 – 0.360 $\sqrt{R_b/t}$	420	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
			3.5	5.7	3.8 – 0.086 $\sqrt{R_b/t}$	1070	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
	16.2		see Part IA Section 3.4.16.2				
COMPRESSION IN BEAM ELEMENTS, (element in bending in own plane), gross section	16.3		see Part IA Section 3.4.16.3				
	17		11	12	14.8 – 0.313 b/t	32	4930 $/(b/t)^2$
			3.9	16	4.9 – 0.059 b/t	55	4930 $/(b/t)^2$
	18		11	63	14.8 – 0.060 h/t	124	917 $/(h/t)$
			3.9	85	4.9 – 0.011 h/t	215	527 $/(h/t)$
SHEAR IN ELEMENTS, gross section	19		11	147	14.8 – 0.026 h/t	290	2120 $/(h/t)$
			3.9	195	4.9 – 0.0049 h/t	500	1220 $/(h/t)$
	20		5	48	7.0 – 0.036 h/t	129	38700 $/(h/t)^2$
			1.7	65	2.2 – 0.0062 h/t	232	38700 $/(h/t)^2$
	21		5	88	9.6 – 0.050 a_e/t	129	53200 $/(a_e/t)^2$
			1.7	142	3.0 – 0.0085 a_e/t	232	53200 $/(a_e/t)^2$

Table 2-8
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
5050-H34 Sheet, Drawn Tube

Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress				
TENSION	Any tension member	gross section net section	1	12 13	9			
	Flat elements in uniform tension		2	12	3.6			
	Round or oval tubes		3	14	4.3			
	Flat elements in bending in their own plane, symmetric shapes		4	16	4.7			
BEARING	On rivets and bolts		5	26	18			
	On flat surfaces and pins and on bolts in slotted holes		6	17	12.5			
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress, $S \leq S_1$	S_1	Allowable Stress, $S_1 < S < S_2$	S_2	Allowable Stress, $S \geq S_2$
COMPRESSION IN COLUMNS, axial	All columns		7	—	0	$10.5 - 0.058 \text{ } kL/r$	121	$51100 \text{ } /(kL/r)^2$
	Flat elements supported on one edge – columns buckling about a symmetry axis		8	—	0	$3.3 - 0.010 \text{ } kL/r$	215	$51100 \text{ } /(kL/r)^2$
	Flat elements supported on one edge – columns not buckling about a symmetry axis		8.1	11	4.0	$12.4 - 0.380 \text{ } b/t$	16	$101 \text{ } /(b/t)$
	Flat elements supported on both edges		9	3.6	2.7	$3.8 - 0.065 \text{ } b/t$	30	$56 \text{ } /(b/t)$
	Flat elements supported on one edge and with stiffener on other edge		9.1	11	4.0	$12.4 - 0.380 \text{ } b/t$	22	$1970 \text{ } /(b/t)^2$
COMPRESSION IN COLUMN ELEMENTS, gross section	Flat elements supported on both edges		9	3.6	2.7	$3.8 - 0.065 \text{ } b/t$	39	$1970 \text{ } /(b/t)^2$
	Flat elements supported on one edge and with stiffener on other edge		9.1	11	13	$12.4 - 0.119 \text{ } b/t$	52	$323 \text{ } /(b/t)$
	Flat elements supported on both edges and with an intermediate stiffener		9.2	3.6	8.7	$3.8 - 0.020 \text{ } b/t$	94	$179 \text{ } /(b/t)$
	Curved elements supported on both edges		10	11	7.2	$12.1 - 0.432 \text{ } \sqrt{R_b/t}$	330	$3190 \text{ } / \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$
				3.6	4.5	$3.8 - 0.094 \text{ } \sqrt{R_b/t}$	930	$3190 \text{ } / \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$

Table 2-8

ALLOWABLE STRESSES FOR BUILDING TYPE STRUCTURES

5050-H34 Sheet, Drawn Tube

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$

see Part IA Section 3.4.9.1

see Part IA Section 3.4.9.2

COMPRESSION IN BEAMS, extreme fiber, gross section	11	Single web shapes		11	26	12.4 – 0.057 L_b/r_y	L_b/r_y	145	87000 $/(L_b/r_y)^2$
				3.6	28	3.9 – 0.010 L_b/r_y	L_b/r_y	260	87000 $/(L_b/r_y)^2$
	12	Round or oval tubes		13	52	21.4 – 1.20 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	147	Same as
				4.3	95	6.8 – 0.261 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	310	Section 3.4.10
	13	Solid rectangular and round sections		14	17	19.5 – 0.310 $d/\sqrt{t}$	$d/\sqrt{t}$	42	11400 $/(d/t)^2 L_b/d$
				4.7	23	6.0 – 0.052 $d/\sqrt{t}$	$d/\sqrt{t}$	76	11400 $/(d/t)^2 L_b/d$
	14	Tubular shapes		11	180	12.4 – 0.109 $\sqrt{2L_b S_e}/\sqrt{I_y J}$	$\sqrt{2L_b S_e}/\sqrt{I_y J}$	5730	23600 $/(L_b S_e/\sqrt{I_y J})$
				3.6	210	3.9 – 0.019 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	$\sqrt{2L_b S_c}/\sqrt{I_y J}$	18100	23600 $/(L_b S_c/\sqrt{I_y J})$
	15	Flat elements supported on one edge		11	8.4	14.7 – 0.449 b/t	b/t	16	120 $/(b/t)$
				3.6	11	4.5 – 0.076 b/t	b/t	30	66 $/(b/t)$
COMPRESSION IN BEAM ELEMENTS, (element in uniform compression), gross section	16	Flat elements supported on both edges		11	27	14.7 – 0.141 b/t	b/t	52	382 $/(b/t)$
				3.6	36	4.5 – 0.024 b/t	b/t	94	212 $/(b/t)$
	16.1	Curved elements supported on both edges		13	8.6	14.3 – 0.511 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	330	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
				4.3	6.3	4.5 – 0.111 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	930	3780 $/(R_b/t) \left(1 + \frac{\sqrt{R_b/t}^2}{35}\right)$
	16.2	Flat elements supported on one edge and with stiffener on other edge		see Part IA Section 3.4.16.2					
	16.3	Flat elements supported on both edges and with an intermediate stiffener		see Part IA Section 3.4.16.3					
	17	Flat elements supported on tension edge, compression edge free		14	11	19.5 – 0.471 b/t	b/t	28	4930 $/(b/t)^2$
				4.7	15	6.0 – 0.080 b/t	b/t	50	4930 $/(b/t)^2$
	18	Flat elements supported on both edges		14	59	19.5 – 0.090 h/t	h/t	108	1050 $/(h/t)$
				4.7	81	6.0 – 0.015 h/t	h/t	195	581 $/(h/t)$
SHEAR IN ELEMENTS, gross section	19	Flat elements supported on both edges and with a longitudinal stiffener		14	136	19.5 – 0.039 h/t	h/t	249	2430 $/(h/t)$
				4.7	186	6.0 – 0.0066 h/t	h/t	450	1340 $/(h/t)$
	20	Unstiffened flat elements supported on both edges		7	44	9.5 – 0.058 h/t	h/t	110	38700 $/(h/t)^2$
				2.1	62	2.6 – 0.0083 h/t	h/t	211	38700 $/(h/t)^2$
	21	Stiffened flat elements supported on both edges		7	77	13.1 – 0.079 a_h/t	a_h/t	110	53200 $/(a_h/t)^2$
				2.1	131	3.6 – 0.011 a_h/t	a_h/t	211	53200 $/(a_h/t)^2$

Table 2-9
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
5052-H32 Sheet, Drawn Tube

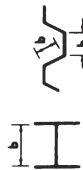
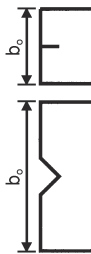
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress				
TENSION, axial	Any tension member	gross section net section	1	14 16	13			
	Flat elements in uniform tension		2	14	6			
TENSION IN BEAMS, extreme fiber, net section	Round or oval tubes		3	16	6.5			
	Flat elements in bending in their own plane, symmetric shapes		4	18	7.5			
BEARING	On rivets and bolts		5	32	26			
	On flat surfaces and pins and on bolts in slotted holes		6	21	17			
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress, $S \leq S_1$	S_1	Allowable Stress, $S_1 < S < S_2$	S_2	Allowable Stress, $S \geq S_2$
COMPRESSION IN COLUMNS, axial	All columns		7	—	0	$12.3 - 0.073 \text{ } kL/r$	112	$51600 \text{ } / (kL/r)^2$
				—	0	$5.3 - 0.021 \text{ } kL/r$	170	$51600 \text{ } / (kL/r)^2$
	Flat elements supported on one edge – columns buckling about a symmetry axis		8	12.5	4.0	$14.7 - 0.486 \text{ } b/t$	15	$111 \text{ } / (b/t)$
				6	3.5	$6.2 - 0.134 \text{ } b/t$	23	$72 \text{ } / (b/t)$
COMPRESSION IN COLUMN ELEMENTS, gross section	Flat elements supported on one edge – columns not buckling about a symmetry axis		8.1	12.5	4.0	$14.7 - 0.486 \text{ } b/t$	20	$1980 \text{ } / (b/t)^2$
				6	3.5	$6.2 - 0.134 \text{ } b/t$	31	$1980 \text{ } / (b/t)^2$
	Flat elements supported on both edges		9	12.5	13	$14.7 - 0.152 \text{ } b/t$	48	$353 \text{ } / (b/t)$
				6	11	$6.2 - 0.042 \text{ } b/t$	74	$230 \text{ } / (b/t)$
	Flat elements supported on one edge and with stiffener on other edge		9.1	see Part IA Section 3.4.9.1				
	Flat elements supported on both edges and with an intermediate stiffener		9.2	see Part IA Section 3.4.9.2				
	Curved elements supported on both edges		10	12.5	7.4	$14.2 - 0.535 \text{ } \sqrt{R_b/t}$	280	$3230 \text{ } / \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$
				6	6.0	$6.2 - 0.177 \text{ } \sqrt{R_b/t}$	730	$3230 \text{ } / \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$

Table 2-9

ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES

5052-H32 Sheet, Drawn Tube

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$

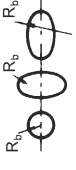
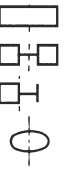
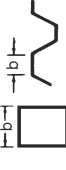
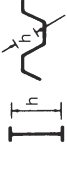
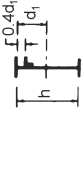
COMPRESSION IN BEAMS, extreme fiber, gross section	11		12.5	26	14.6 – 0.072 L_b/r_y	L_b/r_y	135	87900 $/(L_b/r_y)^2$
	12		6	27	6.3 – 0.021 L_b/r_y	L_b/r_y	204	87900 $/(L_b/r_y)^2$
			15	48	25.1 – 1.49 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	133	Same as
			6.5	74	11.0 – 0.492 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	230	Section 3.4.10
	13		17	16	23.1 – 0.397 $d/\sqrt{t}$	$d/\sqrt{t}$	39	11500 $/(d/\sqrt{t})^2$
			7.5	21	9.7 – 0.109 $d/\sqrt{t}$	$d/\sqrt{t}$	60	11500 $/(d/\sqrt{t})^2$
	14		12.5	177	14.6 – 0.139 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	$\sqrt{2L_b S_c}/\sqrt{I_y J}$	4910	23800 $/(2L_b S_c/\sqrt{I_y J})^2$
			6	201	6.3 – 0.040 $\sqrt{2L_b S_c}/\sqrt{I_y J}$	$\sqrt{2L_b S_c}/\sqrt{I_y J}$	11300	23800 $/(2L_b S_c/\sqrt{I_y J})^2$
	15		12.5	8.0	17.3 – 0.574 b/t	b/t	15	131 $/(b/t)$
			6	10	7.4 – 0.159 b/t	b/t	23	85 $/(b/t)$
COMPRESSION IN BEAM ELEMENTS, (element in uniform compression), gross section	16		12.5	26	17.3 – 0.180 b/t	b/t	48	418 $/(b/t)$
			6	32	7.4 – 0.050 b/t	b/t	74	272 $/(b/t)$
	16.1		15	8.8	16.8 – 0.632 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	280	3810 $/(R_b/t) \left(1 + \sqrt{R_b/t}^2\right)^2$
			6.5	7.7	7.3 – 0.209 $\sqrt{R_b/t}$	$\sqrt{R_b/t}$	730	3810 $/(R_b/t) \left(1 + \sqrt{R_b/t}^2\right)^2$
	16.2		see Part IA Section 3.4.16.2					
	16.3		see Part IA Section 3.4.16.3					
	17		17	11	23.1 – 0.604 b/t	b/t	25	4980 $/(b/t)^2$
			7.5	14	9.7 – 0.166 b/t	b/t	39	4980 $/(b/t)^2$
	18		17	56	23.1 – 0.116 h/t	h/t	100	1150 $/(h/t)$
			7.5	71	9.7 – 0.032 h/t	h/t	153	747 $/(h/t)$
COMPRESSION IN BEAM ELEMENTS, (element in bending in own plane), gross section	19		17	130	23.1 – 0.050 h/t	h/t	230	2660 $/(h/t)$
			7.5	165	9.7 – 0.014 h/t	h/t	350	1730 $/(h/t)$
	20		8	43	11.1 – 0.072 h/t	h/t	103	39000 $/(h/t)^2$
			3.3	55	4.3 – 0.017 h/t	h/t	166	39000 $/(h/t)^2$
	21		8	73	15.3 – 0.099 a_e/t	a_e/t	103	53700 $/(a_e/t)^2$
			3.3	108	5.9 – 0.024 a_e/t	a_e/t	166	53700 $/(a_e/t)^2$

Table 2-10
ALLOWABLE STRESSES FOR
BUILDING TYPE STRUCTURES
5052-H34 Sheet, Plate, Drawn Tube

Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress				
TENSION	Any tension member	gross section net section	1	16 17	13			
	Flat elements in uniform tension		2	16	6			
	Round or oval tubes		3	18	6.5			
	Flat elements in bending in their own plane, symmetric shapes		4	20	7.5			
BEARING	On rivets and bolts		5	35	26			
	On flat surfaces and pins and on bolts in slotted holes		6	23	17			
Type of Stress	Type of Member or Element		Sec. 3.4.	Allowable Stress, $S \leq S_1$	S_1	Allowable Stress, $S_1 < S < S_2$	S_2	Allowable Stress, $S \geq S_2$
COMPRESSION	IN COLUMNS, axial	All columns	7	—	0	$14.2 - 0.091 \text{ } kL/r$	104	$51600 \text{ } /(kL/r)^2$
				—	0	$5.3 - 0.021 \text{ } kL/r$	170	$51600 \text{ } /(kL/r)^2$
		Flat elements supported on one edge – columns buckling about a symmetry axis	8	14.5	4.0	$17.0 - 0.604 \text{ } b/t$	14	$119 \text{ } /(b/t)$
				6	3.5	$6.2 - 0.134 \text{ } b/t$	23	$72 \text{ } /(b/t)$
COMPRESSION	IN COLUMNS, gross section	Flat elements supported on one edge – columns not buckling about a symmetry axis	8.1	14.5	4.0	$17.0 - 0.604 \text{ } b/t$	19	$1980 \text{ } /(b/t)^2$
				6	3.5	$6.2 - 0.134 \text{ } b/t$	31	$1980 \text{ } /(b/t)^2$
		Flat elements supported on both edges	9	14.5	13	$17.0 - 0.190 \text{ } b/t$	45	$380 \text{ } /(b/t)$
				6	11	$6.2 - 0.042 \text{ } b/t$	74	$230 \text{ } /(b/t)$
	Flat elements supported on one edge and with stiffener on other edge		9.1	see Part IA Section 3.4.9.1				
	Flat elements supported on both edges and with an intermediate stiffener		9.2	see Part IA Section 3.4.9.2				
	Curved elements supported on both edges		10	14.5	7.5	$16.3 - 0.644 \text{ } \sqrt{R_b/t}$	250	$3230 \text{ } \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$
				6	6.0	$6.2 - 0.177 \text{ } \sqrt{R_b/t}$	730	$3230 \text{ } \left(\frac{R_b}{t} \right) \left(1 + \frac{\sqrt{R_b/t}^2}{35} \right)$

Table 2-10

ALLOWABLE STRESSES FOR BUILDING TYPE STRUCTURES

5052-H34 Sheet, Plate, Drawn Tube

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for R_b / $t < 20$

White bars apply to unwelded metal

Shaded bars apply to weld-affected metal

For tubes with circumferential welds, Sections 3.4.10, 3.4.12, and 3.4.16.1 apply for $R_b / t < 20$