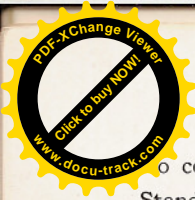


DESIGN TABLES

From 39' 4"

Clear Span	Allspan Type	Wt. Per Foot	Total Safe Loads in pounds per square foot for spacing shown.					Clear Span	Allspan Type	Wt. Per Foot	Total Safe Loads in pounds per square foot for spacing shown.					Clear Span	Allspan Type	Wt. Per Foot	Total Safe Loads in pounds per square foot for spacing shown.				
			1'	4'	6'	7'	8'				1'	4'	6'	7'	8'				1'	4'	6'	7'	8'
39'	B206	8.6	237	59	39	33	29	42'	B2411	16.2	488	122	81	69	61	45'	B3211	16.7	577	144	96	82	72
	B207	10.3	284	71	47	40	35		B2412	17.1	512	128	85	73	64		B3212	17.8	608	152	101	86	76
	B224	6.3	184	46	30	26	23		B2413	19.2	575	143	95	82	71		B3610	14.7	577	144	96	82	72
	B225	7.5	214	53	35	30	26		B264	6.8	188	47	31	26	23								
	B226	8.8	262	65	43	37	32		B265	7.7	219	54	36	31	27		B244	6.5	145	36	24	20	18
	B227	10.5	314	78	52	44	39		B267	10.8	321	80	53	45	40		B246	8.9	206	51	34	29	25
	B244	6.5	201	50	33	28	25		B268	13.0	390	97	65	55	48		B248	12.7	299	74	49	42	37
	B245	7.6	234	58	39	33	29		B2810	14.4	513	128	85	73	64		B2410	14.0	362	90	60	51	45
	B246	8.9	286	71	47	40	35		B2811	16.4	571	142	95	81	71		B2411	16.2	407	101	67	58	50
	B247	10.6	343	85	57	49	42		B3210	14.4	571	142	95	81	71		B2412	17.1	427	106	71	61	53
	B248	12.7	416	104	69	59	52		B3211	16.7	619	154	103	88	77		B2413	19.2	480	120	80	68	60
	B2410	14.0	504	126	84	72	63								B265		7.7	183	45	30	26	22	
B2411	16.2	564	141	94	80	70	B226	8.8	215	53	35	30	26	B267	10.8	268	67	44	38	33			
B264	6.8	219	54	36	31	27	B227	10.5	258	64	43	36	32	B2810	14.4	428	107	71	61	53			
B265	7.7	254	63	42	36	31	B245	7.6	192	48	32	27	24	B2811	16.4	481	120	80	68	60			
B266	9.0	311	77	51	44	38	B246	8.9	235	58	39	33	29	B2812	17.4	505	126	84	72	63			
B267	10.8	372	93	62	53	46	B247	10.6	282	70	47	40	35	B2813	19.4	566	141	94	80	70			
B2810	14.4	564	141	94	80	70	B248	12.7	342	85	57	48	42	B3210	14.4	494	123	82	70	61			
B3210	14.4	615	153	102	87	76	B2410	14.0	414	103	69	59	51	B3211	16.7	555	138	92	79	69			
							B2411	16.2	466	116	77	66	58	B3212	17.8	582	145	97	83	72			
							B2412	17.1	488	122	81	69	61	B3610	14.7	560	140	93	80	70			
							B2413	19.2	549	137	91	78	68										
40'	B206	8.6	226	56	37	32	28	43'	B2412	17.1	488	122	81	69	61	46'	B247	10.6	236	59	39	33	29
	B207	10.3	271	67	45	38	33		B2413	19.2	549	137	91	78	68		B248	12.7	286	71	47	40	35
	B224	6.3	175	43	29	25	21		B265	7.7	209	52	34	29	26		B2410	14.0	346	86	57	49	43
	B225	7.5	204	51	34	29	25		B266	9.0	256	64	42	36	32		B2411	16.2	389	97	64	55	48
	B226	8.8	249	62	41	35	31		B267	10.8	306	76	51	43	38		B2412	17.1	409	102	68	58	51
	B227	10.5	298	74	49	42	37		B268	13.0	372	93	62	53	46		B2413	19.2	459	114	76	65	57
	B244	6.5	191	47	31	27	23		B2810	14.4	490	122	81	70	61		B265	7.7	175	43	29	25	21
	B245	7.6	223	55	37	31	27		B2811	16.4	550	137	91	78	68		B266	9.0	214	53	35	30	26
	B246	8.9	272	68	45	38	34		B2812	17.4	577	144	96	82	72		B267	10.8	256	64	42	36	32
	B247	10.6	326	81	54	46	40		B3210	14.4	558	139	93	79	69		B268	13.0	311	77	51	44	38
	B248	12.7	396	99	66	56	49		B3211	16.7	604	151	100	86	75		B2810	14.4	410	102	68	58	51
	B2410	14.0	479	119	79	68	59								B2811		16.4	460	115	76	65	57	
B2411	16.2	538	134	89	76	67	B226	8.8	206	51	34	29	25	B2812	17.4	483	120	80	69	60			
B2412	17.1	565	141	94	80	70	B227	10.5	246	61	41	35	30	B2813	19.4	542	135	90	77	67			
B264	6.8	208	52	34	29	26	B245	7.6	184	46	30	26	23	B3210	14.4	473	118	78	67	59			
B265	7.7	242	60	40	34	30	B246	8.9	225	56	37	32	28	B3211	16.7	532	133	88	76	66			
B266	9.0	296	74	49	42	37	B247	10.6	269	67	44	38	33	B3212	17.8	557	139	92	79	69			
B267	10.8	354	88	59	50	44	B248	12.7	327	81	54	46	40	B3610	14.7	535	133	89	76	66			
B2810	14.4	550	137	91	78	68	B2410	14.0	396	99	66	56	49	B3611	16.7	595	148	99	85	74			
B2811	16.4	600	150	100	85	75	B2411	16.2	445	111	74	63	55										
B3210	14.4	600	150	100	85	75	B2412	17.1	467	116	77	66	58	B247	10.6	226	56	37	32	28			
							B2413	19.2	524	131	87	74	65	B248	12.7	275	68	45	39	34			
							B264	6.8	172	43	28	24	21	B2410	14.0	332	83	55	47	41			
41'	B226	8.8	237	59	39	33	29	44'	B265	7.7	200	50	33	28	25	B2411	16.2	373	93	62	53	46	
	B227	10.5	284	71	47	40	35		B266	9.0	244	61	40	34	30	B2412	17.1	392	98	65	56	49	
	B244	6.5	182	45	30	26	22		B267	10.8	293	73	48	41	36	B2413	19.2	440	110	73	62	55	
	B245	7.6	212	53	35	30	26		B2810	14.4	468	116	78	66	58	B265	7.7	167	41	27	23	20	
	B246	8.9	259	64	43	37	32		B2811	16.4	525	131	87	75	65	B266	9.0	205	51	34	29	25	
	B248	12.7	377	94	62	53	47		B2812	17.4	551	137	91	78	68	B267	10.8	246	61	41	35	30	
	B2410	14.0	456	114	76	65	57		B2813	19.4	599	148	98	84	74	B268	13.0	298	74	49	42	37	
	B2411	16.2	512	128	85	73	64		B3210	14.4	540	135	90	77	67	B2810	14.4	393	98	65	56	49	
	B2412	17.1	537	134	89	76	67		B3211	16.7	591	147	98	84	73	B2811	16.7	441	110	73	63	55	
	B265	7.7	230	57	38	32	28								B2812	17.4	464	116	77	66	58		
	B266	9.0	281	70	46	40	35		B245	7.6	176	44	29	25	22	B2813	19.4	519	129	86	74	64	
	B267	10.8	337	84	56	48	42		B247	10.6	257	64	42	36	32	B3210	14.4	453	113	75	64	56	
B268	13.0	409	102	68	58	51	B2410	14.0	378	94	63	54	47	B3211	16.7	509	127	84	72	63			
B2810	14.4	536	134	89	76	67	B2411	16.2	425	106	70	60	53	B3212	17.8	534	133	89	76	66			
B2811	16.4	585	146	97	83	73	B2412	17.1	446	111	74	63	55	B3610	14.7	514	128	85	73	64			
B3210	14.4	585	146	97	83	73	B2413	19.2	501	125	83	71	62	B3611	16.7	576	144	96	82	72			
							B264	6.8	164	41	27	23	20										
42'	B226	8.8	226	56	37	32	28	45'	B266	9.0	234	58	39	33	29	49'	B2810	14.4	377	94	62	53	47
	B227	10.5	270	67	45	38	33		B268	13.0	339	84	56	48	42		B2811	16.4	423	105	70	60	52
	B228	12.5	329	82	54	47	41		B2810	14.4	447	111	74	63	55		B2812	17.4	445	111	74	63	55
	B245	7.6	202	50	33	28	25		B2811	16.4	502	125	83	71	62		B2813	19.4	499	124	83	71	62
	B246	8.9	247	61	41	35	30		B2812	17.4	527	131	87	75	65		B3210	14.4	435	108	72	62	54
	B248	12.7	359	89	59	51	44		B2813	19.4	592	148	98	84	74								
	B2410	14.0	434	108	72	62	54		B3210	14.4	516	129	86	73	64								



to conform to the requirements of Clause 8.1.3 of C.S.A. Standard S 136-1963, the following material specification for Anthes Cold Roll Formed Sections is included in this Design Manual.

SPECIFICATION FOR ANTHERS COLD ROLL FORMED SECTIONS USED IN ANTHERS ALLSPANS AND IN FLOOR AND ROOF FRAMING SYSTEMS.

1. SCOPE

1.1 These specifications shall apply to patented "V" section chords, tubes and other sections as roll formed by Anthes Steel Products Limited.

1.2 Anthes "V" sections and tubes are roll formed to substantially the shapes and with the properties shown in Tables 1 & 2, in varying thicknesses and cross-sectional dimensions, as required by specific application.

2. QUALIFICATION

2.1 Cold roll formed sections and the materials used therein conform to the following published codes and standards:

2.2 National Building Code of Canada (1960).

Sub Section 4.6.36 "Cold Formed Steel Construction".
Items 4.6.36.1 to 4.6.36.10 inclusive.

2.3 C.S.A. Standard S 136-1963.

"V" section chords, tubes, etc. conform to this standard in its entirety and qualify under the provisions of the following clauses.

- (a) "3.2 The listing in Clause 3.1 does not exclude the use of other steels, the properties and suitability of which are established by either the producer or the purchaser through analyses, tests, and other controls to the extent and in the manner prescribed in Clause 8 and as approved by the authority having jurisdiction."
- (b) "3.3 The suitability of any steel after cold-forming shall be demonstrated by the requirements of Clause 8."
- (c) "5.1.2.1 Utilization, for design purposes, of any change in material strength that results from a cold working or cold forming operation is permissible provided the change in strength is applicable to the kind of stress, tension or compression, that is to be imposed on the final product in service, and under the limitations prescribed in Clauses 5.1.2.2 (a) and (b)."

- (d) "8.1.3 Published Properties. The minimum guaranteed mechanical properties of materials used for design purposes shall be established in a published material specification. The established properties shall be available on request to purchasers and, for approval, to authorities having jurisdiction."

3. MANUFACTURE

3.1 Anthes "V" Sections and Open Seam Tubes shall be cold roll formed from coils of hot rolled sheet or strip and shall be of either open hearth, electric furnace or basic oxygen steel.

3.2 In order to ensure a uniformly high level of mechanical properties of the steel, controlled rolling techniques and/or alloy additions compatible with cold forming are required.

4. CHEMICAL COMPOSITION

4.1 To ensure suitable cold roll forming and welding characteristics, the following chemical composition of coiled steel shall be required.

Steel Grade	Chemical	Minimum	Maximum	Use
Anthes V-125	Carbon	0.11%	0.18%	1 ¼"
	Manganese	0.61%	0.90%	"V" Section
	Phosphorus	none	0.04%	
	Sulphur	none	0.05%	
Anthes V-300	Carbon	0.15%	0.22%	3" "V" Section
	Manganese	0.61%	0.90%	
	Phosphorus	none	0.04%	
	Sulphur	none	0.05%	
Anthes T-55	Carbon	0.11%	0.18%	Open Seam Tubes
	Manganese	0.61%	0.90%	
	Phosphorus	none	0.04%	
	Sulphur	none	0.05%	
	Semi Killed Steel			

The analysis shall be made from a test ingot taken during the pouring of the heat.

5. MECHANICAL PROPERTIES

5.1 The mechanical properties of Anthes "V" Sections and Open Seam Tubes shall conform to the following:

Tensile Strength: 67,000 p.s.i. minimum

Yield Strength: 55,000 p.s.i. minimum

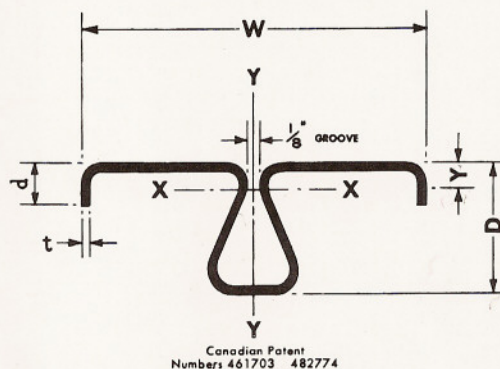
5.2 Residual Ductility.

Anthes "V" Sections and Open Seam Tubes shall withstand the following tests in accordance with C.S.A. Standard S 136-1963:

8.2.3 Bend Test for Residual Ductility. A flat specimen at least 3 inches long, cut from a cold formed member, shall stand being bent at room temperature through 180 degrees to an inside diameter of $1\frac{1}{2}$ times

the thickness of the material or $\frac{3}{4}$ of the sharpest bend diameter in the cold formed member, whichever is the smaller, without cracking on the outside of the bent specimen."

6. PROPERTIES FOR DESIGNING



ANTHES 1 $\frac{1}{4}$ " V-SECTION

Top Chord Size	1	2	3	4	5	6	7	8
Area In. ²	0.378	0.478	0.618	0.719	0.836	1.032	1.231	1.492
Wt. Lb./Ft.	1.3	1.7	2.1	2.5	2.9	3.5	4.2	5.1
Gauge t	0.064	0.079	0.091	0.106	0.116	0.132	0.142	0.153
W In.	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{3}{8}$	3 $\frac{5}{8}$	3 $\frac{7}{8}$	4 $\frac{1}{4}$	5	5 $\frac{7}{8}$
d In.	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$	$1\frac{1}{16}$	$1\frac{3}{16}$
D In.	1.19	1.20	1.22	1.23	1.24	1.26	1.27	1.28
Y In.	0.44	0.43	0.41	0.42	0.42	0.40	0.38	0.37
Axis X-X	I	0.07	0.09	0.11	0.13	0.14	0.17	0.20
	S	0.09	0.11	0.13	0.16	0.18	0.20	0.22
	r	0.43	0.42	0.42	0.42	0.42	0.41	0.40
Axis Y-Y	I	0.12	0.23	0.47	0.56	0.78	1.32	2.17
	S	0.11	0.17	0.28	0.33	0.43	0.62	0.85
	r	0.57	0.70	0.87	0.88	0.97	1.14	1.33

ANTHES 3" V-SECTION

Top Chord Size	9	10	11	12	13	14	15	16	17	18	19
Area In. ²	1.58	1.84	2.06	2.32	2.59	2.85	3.18	3.54	3.99	4.51	4.77
Wt. Lb./Ft.	5.3	6.4	7.1	8.0	9.0	9.9	11.0	12.3	13.8	15.7	16.6
Gauge t	0.110	0.128	0.142	0.156	0.163	0.177	0.191	0.207	0.223	0.230	0.230
W In.	5 $\frac{5}{8}$	5 $\frac{5}{8}$	6 $\frac{3}{16}$	6 $\frac{3}{4}$	7 $\frac{5}{16}$	7 $\frac{9}{16}$	7 $\frac{7}{8}$	8 $\frac{7}{16}$	9	10 $\frac{9}{16}$	11 $\frac{1}{16}$
d In.	1	1 $\frac{1}{8}$	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1	1 $\frac{3}{16}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	1 $\frac{5}{16}$	1 $\frac{7}{16}$	1 $\frac{13}{16}$
D In.	2.86	2.88	2.89	2.91	2.92	2.93	2.94	2.96	2.97	2.98	2.98
Y In.	1.12	1.03	1.00	0.98	0.97	0.96	0.94	0.92	0.91	0.86	0.88
Axis X-X	I	1.70	1.89	2.16	2.43	2.65	2.86	3.15	3.49	3.85	4.20
	S	0.98	1.02	1.14	1.26	1.36	1.45	1.58	1.72	1.87	2.07
	r	1.04	1.01	1.02	1.02	1.01	1.00	1.00	0.99	0.98	0.96
Axis Y-Y	I	3.39	4.04	4.97	6.41	8.41	10.74	13.68	17.49	23.15	37.16
	S	1.20	1.41	1.59	1.90	2.36	2.87	3.42	4.08	5.06	6.93
	r	1.47	1.48	1.55	1.66	1.80	1.94	2.08	2.22	2.41	2.87

ANTHES O.S. TUBES

Outside Diameter		1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{2}$ "
Area In. ²		0.237	0.336	0.427
Gauge t		0.064	0.09	0.116
Inside Dia.		1.123	1.07	1.018
Wt. Lb./Ft.		0.82	1.14	1.45
Axis X-X or Y-Y	I	0.042	0.056	0.067
	S	0.067	0.089	0.107
	r	0.420	0.411	0.403

