

# CARNEGIE BEAM SECTIONS

ADDITIONS  
TO  
NEW SERIES



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CARNEGIE STEEL COMPANY  
A SUBSIDIARY OF UNITED STATES STEEL CORPORATION  
PITTSBURGH, PA.

THIRD EDITION

A. I. A. FILE No. 13-b1.



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COLUMNS—CARNEGIE BEAM SECTIONS

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# CARNEGIE BEAM SECTIONS

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**PROFILES, PROPERTIES  
AND  
SAFE LOADS  
FOR  
ADDITIONS TO NEW SERIES  
OF  
STRUCTURAL STEEL BEAMS  
AND  
COLUMN SECTIONS**

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MANUFACTURED BY  
**CARNEGIE STEEL COMPANY**  
SUBSIDIARY OF UNITED STATES STEEL CORPORATION  
PITTSBURGH, PA.

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Third Edition, October 1, 1929

Printed in U. S. A.

**T**HIS pamphlet contains additions and modifications that have been found of advantage to users of Carnegie Beam Sections.

These briefly are as follows:

A new 36" x 16" section in weights of 300, 275, 250 and 230 pounds, to be known as CB 362.

A new 36" x 12" section in weights of 192, 175, 160 and 147 pounds, to be known as CB 361.

A new 33" x 16" section in weights of 260, 240, 220 and 200 pounds, to be known as CB 332.

A new 33" x 12" section in weights of 167, 152, 138 and 125 pounds, to be known as CB 331.

Additional weights of CB 301, 165 and 151 pounds. Old weights of 135 and 125 pounds have been discontinued and are replaced by new weights of 138 and 126 pounds.

Additional weights of CB 271, 137, 124 and 85 pounds.

Additional weights of CB 213, 136 and 128 pounds.

Additional weight of CB 212, 98 pounds.

Additional weights of CB 211, 76 and 55 pounds, while the 60-pound weight has been discontinued.

Additional heavier weights of CB 146, 14", column section, advancing by 20-pound increments, from 325 to 425 pounds.

Additional lighter weights of CB 146, 106, 96 and 86 pounds.

A new 12" x 12" constant depth column group in weights of 102, 95, 88 and 82 pounds, to be called CB 124C. CB 124 and CB 124 A have been discontinued.

A new 12" x 12" constant depth column group in weights of 76, 70 and 65 pounds, to be called CB 124 B.

CB 123 A is changed to a variable depth section in weights of 66, 60 and 55 pounds, and will be called CB 123 B.

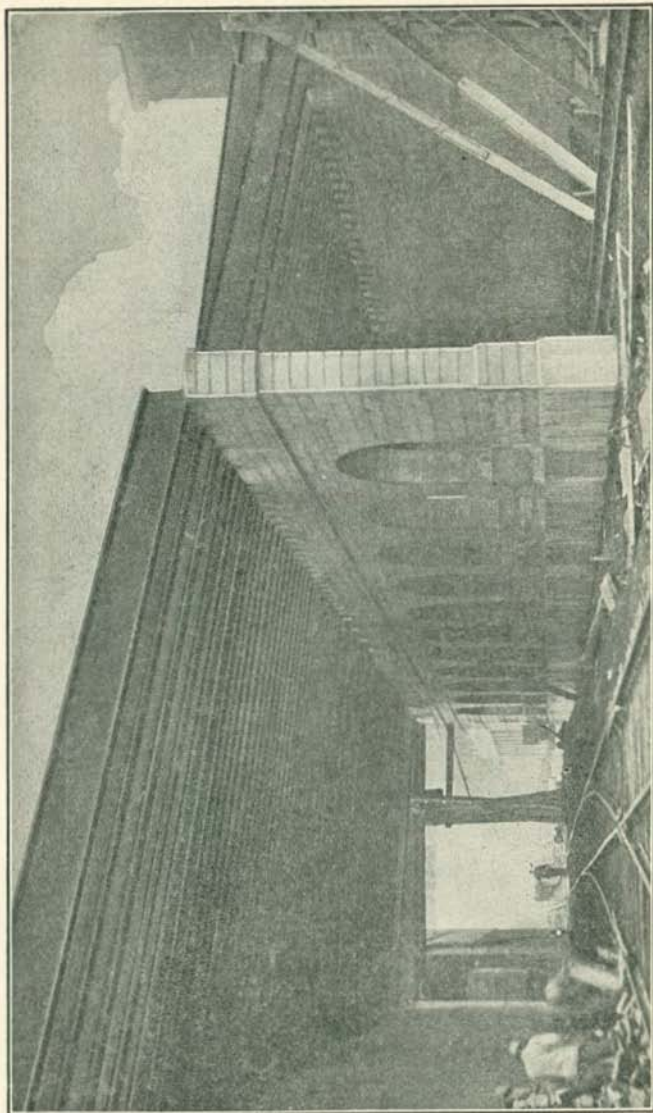
A new 10" x 10" constant depth column group in weights of 64, 59, 54 and 49 pounds, to be called CB 103 A. CB 103 has been discontinued.

New minimum weights of B 40, 20.5 pounds and B 39, 17.5 pounds. Minimum weights as formerly published B 40, 21 pounds and B 39, the 18-pound weight has been discontinued.

A new 6" x 9½" column section has been added in weights of 88, 80, 70, 60, 50 and 40 pounds, to be known as CB 61.

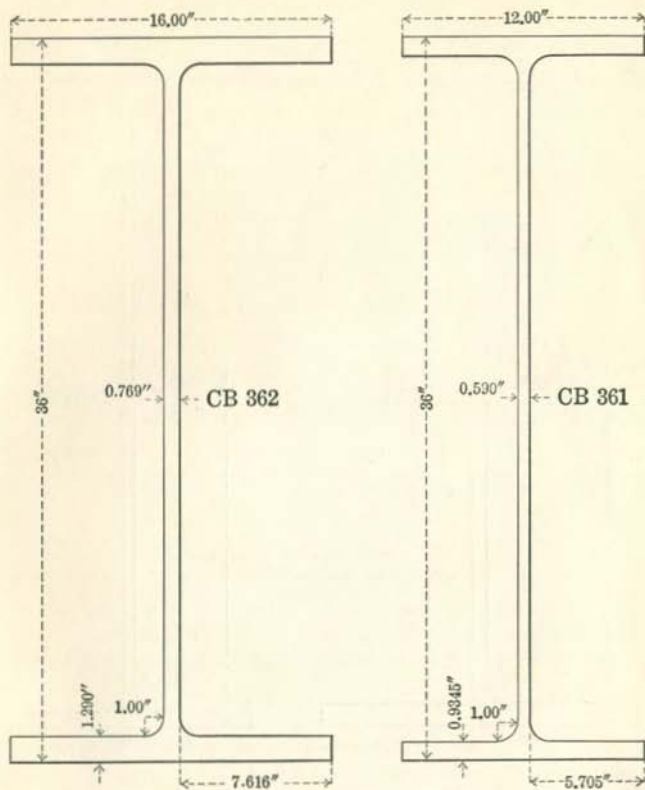
This book cancels and supersedes one bearing the same title and published as the Second Edition under date of November 1, 1928.





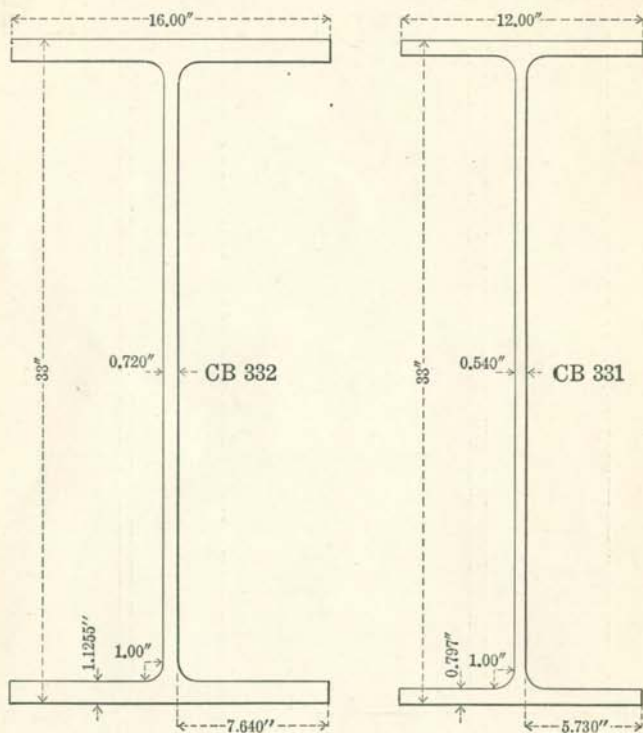
CARNEGIE BEAM SECTIONS IN GRADE CROSSING SEPARATION

## CARNEGIE BEAM SECTIONS



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 362	36.851	$36\frac{27}{32}$	300	16.189	$16\frac{3}{16}$	1.7155	$1\frac{23}{32}$	0.958	$\frac{3}{8}$
	36.550	$36\frac{35}{64}$	275	16.121	$16\frac{1}{8}$	1.565	$1\frac{3}{16}$	0.890	$\frac{5}{16}$
	36.243	$36\frac{1}{4}$	250	16.055	$16\frac{1}{16}$	1.4115	$1\frac{13}{32}$	0.824	$\frac{5}{16}$
	36.000	36	230	16.000	16	1.290	$1\frac{13}{64}$	0.769	$\frac{49}{64}$
CB 361	36.645	$36\frac{41}{64}$	192	12.150	$12\frac{3}{32}$	1.257	$1\frac{1}{4}$	0.740	$\frac{47}{64}$
	36.395	$36\frac{25}{64}$	175	12.096	$12\frac{3}{32}$	1.132	$1\frac{1}{8}$	0.686	$1\frac{1}{16}$
	36.183	$36\frac{7}{16}$	160	12.045	$12\frac{3}{64}$	1.026	$1\frac{1}{32}$	0.635	$\frac{41}{64}$
	36.000	36	147	12.000	12	0.9345	$1\frac{1}{16}$	0.590	$1\frac{1}{32}$

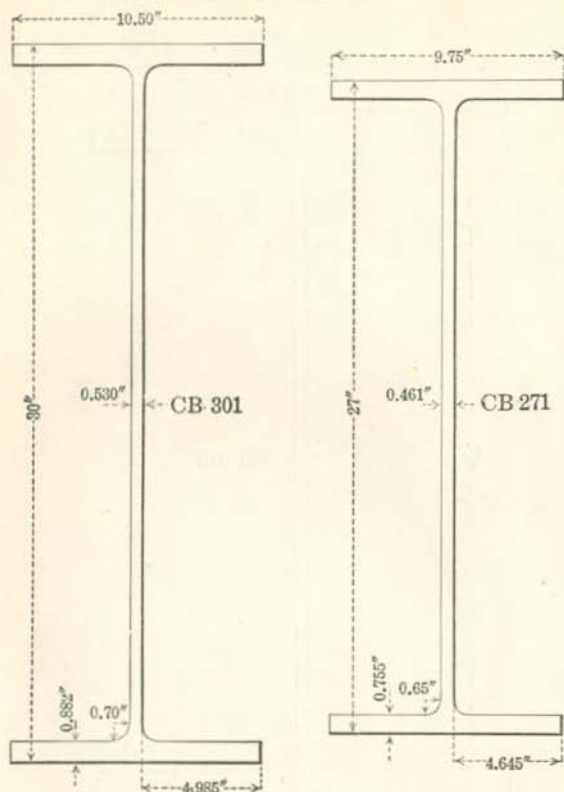
## CARNEGIE BEAM SECTIONS—Continued 1929



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 332	33.786	$33\frac{25}{64}$	260	16.150	$16\frac{3}{32}$	1.5185	$1\frac{33}{64}$	0.870	$\frac{7}{8}$
	33.546	$33\frac{35}{64}$	240	16.090	$16\frac{5}{32}$	1.3985	$1\frac{13}{32}$	0.810	$13/16$
	33.272	$33\frac{17}{64}$	220	16.046	$16\frac{3}{64}$	1.2615	$1\frac{7}{64}$	0.766	$49/64$
	33.000	33	200	16.000	16	1.1255	$1\frac{1}{8}$	0.720	$23/32$
CB 331	33.530	$33\frac{17}{64}$	167	12.179	$12\frac{11}{64}$	1.062	$1\frac{1}{16}$	0.719	$23/32$
	33.342	$33\frac{11}{64}$	152	12.115	$12\frac{7}{64}$	0.968	$\frac{31}{64}$	0.655	$21/32$
	33.164	$33\frac{1}{64}$	138	12.056	$12\frac{1}{16}$	0.879	$\frac{3}{8}$	0.596	$19/32$
	33.000	33	125	12.000	12	0.797	$\frac{5}{64}$	0.540	$35/64$



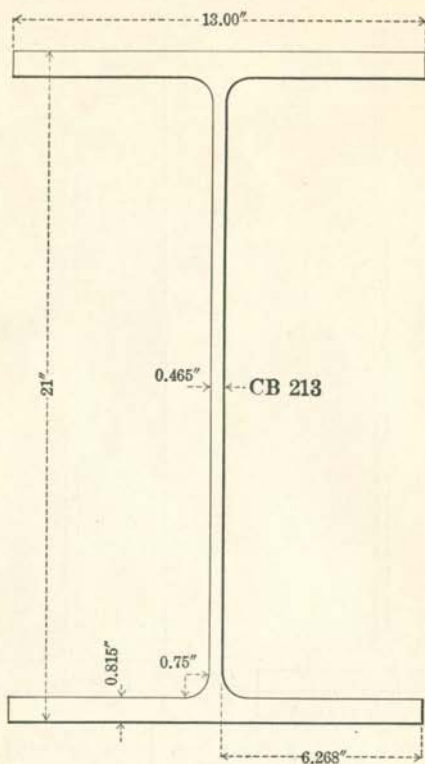
## CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 301	30.742	30 <sup>3</sup> / <sub>4</sub>	165	10.725	10 <sup>23</sup> / <sub>32</sub>	1.253	1 <sup>1</sup> / <sub>4</sub>	0.755	<sup>3</sup> / <sub>4</sub>
	30.538	30 <sup>1</sup> <sup>7</sup> / <sub>32</sub>	151	10.662	10 <sup>2</sup> <sup>1</sup> / <sub>32</sub>	1.151	1 <sup>1</sup> / <sub>32</sub>	0.692	1 <sup>1</sup> / <sub>16</sub>
	30.344	30 <sup>1</sup> <sup>1</sup> / <sub>32</sub>	138	10.604	10 <sup>3</sup> <sup>9</sup> / <sub>64</sub>	1.054	1 <sup>3</sup> / <sub>16</sub>	0.634	4 <sup>1</sup> / <sub>16</sub>
	30.162	30 <sup>3</sup> / <sub>32</sub>	126	10.551	10 <sup>3</sup> <sup>3</sup> / <sub>64</sub>	0.963	2 <sup>1</sup> / <sub>32</sub>	0.581	3 <sup>3</sup> / <sub>16</sub>
	30.000	30	115	10.500	10 <sup>1</sup> / <sub>2</sub>	0.882	<sup>7</sup> / <sub>8</sub>	0.530	1 <sup>7</sup> / <sub>32</sub>
CB 271	27.742	27 <sup>3</sup> / <sub>4</sub>	137	9.977	9 <sup>6</sup> / <sub>32</sub>	1.126	1 <sup>1</sup> / <sub>16</sub>	0.688	1 <sup>1</sup> / <sub>16</sub>
	27.536	27 <sup>1</sup> <sup>7</sup> / <sub>32</sub>	124	9.913	9 <sup>2</sup> <sup>7</sup> / <sub>32</sub>	1.023	1 <sup>1</sup> / <sub>32</sub>	0.624	<sup>5</sup> / <sub>8</sub>
	27.340	27 <sup>1</sup> <sup>1</sup> / <sub>32</sub>	112	9.855	9 <sup>9</sup> / <sub>64</sub>	0.925	<sup>3</sup> / <sub>16</sub>	0.566	<sup>9</sup> / <sub>16</sub>
	27.166	27 <sup>1</sup> <sup>3</sup> / <sub>16</sub>	101	9.799	9 <sup>5</sup> / <sub>16</sub>	0.838	2 <sup>7</sup> / <sub>32</sub>	0.510	3 <sup>3</sup> / <sub>16</sub>
	27.000	27	91	9.750	9 <sup>3</sup> / <sub>4</sub>	0.755	<sup>3</sup> / <sub>4</sub>	0.461	1 <sup>7</sup> / <sub>32</sub>
	26.820	26 <sup>1</sup> <sup>1</sup> / <sub>10</sub>	85	9.750	9 <sup>3</sup> / <sub>4</sub>	0.665	4 <sup>3</sup> / <sub>16</sub>	0.461	1 <sup>5</sup> / <sub>32</sub>

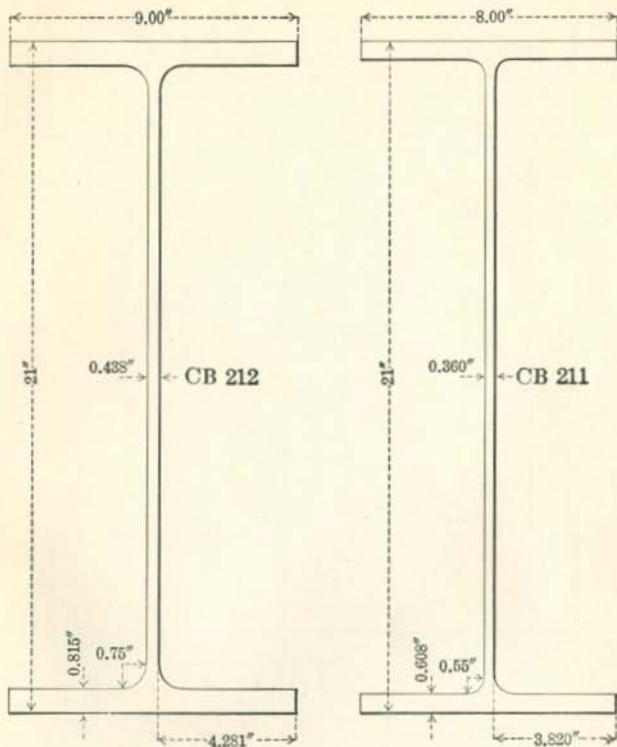
## CARNEGIE BEAM SECTIONS—Continued

1929



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 213	21.492	21½	136	13.141	13¾₄	1.061	1½₁₆	0.606	39⁹⁄₄
	21.372	21¾	128	13.105	13⅞₄	1.001	1	0.570	9¹⁰
	21.248	21¼	120	13.070	13⅝₁₆	0.939	1½₁₆	0.535	17⁵⁄₃₂
	21.126	21⅓	112	13.034	13⅓₂	0.878	7⁄₈	0.499	½
	21.000	21	104	13.000	13	0.815	13⁹⁄₁₆	0.465	15⁵⁄₃₂

## CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 212	21.358	21 <sup>3</sup> / <sub>64</sub>	98	9.097	9 <sup>5</sup> / <sub>32</sub>	0.994	1	0.535	1 <sup>1</sup> / <sub>2</sub>
	21.240	21 <sup>13</sup> / <sub>64</sub>	92	9.064	9 <sup>1</sup> / <sub>16</sub>	0.935	1 <sup>5</sup> / <sub>16</sub>	0.502	<sup>1</sup> / <sub>2</sub>
	21.120	21 <sup>1</sup> / <sub>8</sub>	86	9.032	9 <sup>5</sup> / <sub>32</sub>	0.875	<sup>7</sup> / <sub>8</sub>	0.470	1 <sup>3</sup> / <sub>2</sub>
	21.000	21	80	9.000	9	0.815	1 <sup>1</sup> / <sub>16</sub>	0.438	<sup>7</sup> / <sub>16</sub>
CB 211	21.370	21 <sup>3</sup> / <sub>8</sub>	76	8.109	8 <sup>7</sup> / <sub>64</sub>	0.793	<sup>5</sup> / <sub>16</sub>	0.469	1 <sup>5</sup> / <sub>2</sub>
	21.248	21 <sup>1</sup> / <sub>4</sub>	70	8.073	8 <sup>5</sup> / <sub>64</sub>	0.732	<sup>4</sup> / <sub>16</sub>	0.433	<sup>7</sup> / <sub>16</sub>
	21.126	21 <sup>3</sup> / <sub>8</sub>	64	8.036	8 <sup>1</sup> / <sub>2</sub>	0.671	<sup>4</sup> / <sub>16</sub>	0.396	2 <sup>3</sup> / <sub>4</sub>
	21.000	21	58	8.000	8	0.608	2 <sup>3</sup> / <sub>64</sub>	0.360	2 <sup>3</sup> / <sub>4</sub>
	20.890	20 <sup>5</sup> / <sub>64</sub>	55	8.000	8	0.553	2 <sup>5</sup> / <sub>64</sub>	0.360	2 <sup>3</sup> / <sub>4</sub>

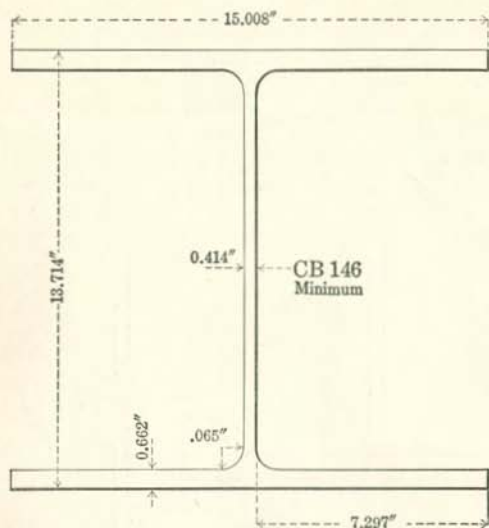
## CARNEGIE BEAM SECTIONS—Continued

1929



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 146	18.510	18 <sup>3</sup> / <sub>64</sub>	425	16.506	16 <sup>1</sup> / <sub>2</sub>	3.060	3 <sup>1</sup> / <sub>16</sub>	1.912	1 <sup>29</sup> / <sub>32</sub>
	18.246	18 <sup>1</sup> / <sub>4</sub>	405	16.423	16 <sup>2</sup> / <sub>64</sub>	2.928	2 <sup>59</sup> / <sub>64</sub>	1.829	1 <sup>53</sup> / <sub>64</sub>
	17.978	17 <sup>63</sup> / <sub>64</sub>	385	16.340	16 <sup>1</sup> / <sub>32</sub>	2.794	2 <sup>5</sup> / <sub>64</sub>	1.746	1 <sup>3</sup> / <sub>4</sub>
	17.710	17 <sup>45</sup> / <sub>64</sub>	365	16.255	16 <sup>1</sup> / <sub>4</sub>	2.660	2 <sup>2</sup> / <sub>32</sub>	1.661	1 <sup>2</sup> / <sub>32</sub>
	17.438	17 <sup>3</sup> / <sub>16</sub>	345	16.172	16 <sup>1</sup> / <sub>64</sub>	2.524	2 <sup>1</sup> / <sub>32</sub>	1.578	1 <sup>3</sup> / <sub>64</sub>
	17.164	17 <sup>1</sup> / <sub>64</sub>	325	16.087	16 <sup>3</sup> / <sub>32</sub>	2.387	2 <sup>2</sup> / <sub>64</sub>	1.493	1 <sup>1</sup> / <sub>2</sub>
	16.890	16 <sup>2</sup> / <sub>64</sub>	305	16.000	16	2.250	2 <sup>1</sup> / <sub>4</sub>	1.406	1 <sup>1</sup> / <sub>32</sub>
	16.752	16 <sup>3</sup> / <sub>4</sub>	295	15.956	15 <sup>61</sup> / <sub>64</sub>	2.181	2 <sup>3</sup> / <sub>16</sub>	1.362	1 <sup>2</sup> / <sub>64</sub>
	16.614	16 <sup>3</sup> / <sub>64</sub>	285	15.912	15 <sup>29</sup> / <sub>32</sub>	2.112	2 <sup>3</sup> / <sub>64</sub>	1.318	1 <sup>3</sup> / <sub>16</sub>
	16.472	16 <sup>1</sup> / <sub>32</sub>	275	15.870	15 <sup>7</sup> / <sub>8</sub>	2.041	2 <sup>3</sup> / <sub>64</sub>	1.276	1 <sup>3</sup> / <sub>32</sub>
	16.332	16 <sup>2</sup> / <sub>64</sub>	265	15.826	15 <sup>53</sup> / <sub>64</sub>	1.971	1 <sup>3</sup> / <sub>32</sub>	1.232	1 <sup>1</sup> / <sub>64</sub>
	16.192	16 <sup>3</sup> / <sub>16</sub>	255	15.781	15 <sup>29</sup> / <sub>32</sub>	1.901	1 <sup>29</sup> / <sub>32</sub>	1.187	1 <sup>3</sup> / <sub>16</sub>
	16.050	16 <sup>3</sup> / <sub>4</sub>	245	15.738	15 <sup>4</sup> / <sub>64</sub>	1.830	1 <sup>53</sup> / <sub>64</sub>	1.144	1 <sup>9</sup> / <sub>64</sub>
	15.908	15 <sup>2</sup> / <sub>32</sub>	235	15.693	15 <sup>1</sup> / <sub>16</sub>	1.759	1 <sup>4</sup> / <sub>64</sub>	1.099	1 <sup>1</sup> / <sub>32</sub>
	15.764	15 <sup>4</sup> / <sub>64</sub>	225	15.650	15 <sup>2</sup> / <sub>32</sub>	1.687	1 <sup>1</sup> / <sub>16</sub>	1.056	1 <sup>1</sup> / <sub>16</sub>

## CARNEGIE BEAM SECTIONS—Continued

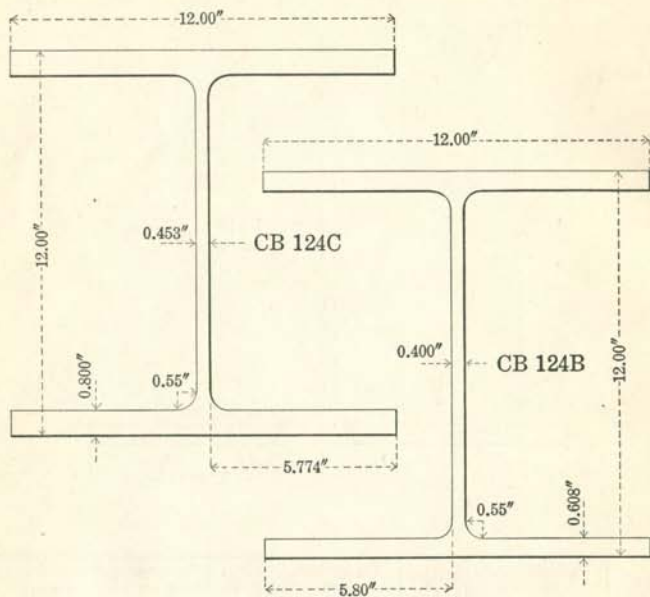


Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 146	15.622	15 $\frac{5}{8}$	215	15.604	15 $\frac{39}{64}$	1.616	1 $\frac{39}{64}$	1.010	1 $\frac{1}{4}$
	15.478	15 $\frac{31}{64}$	205	15.559	15 $\frac{9}{16}$	1.544	1 $\frac{39}{64}$	0.965	2 $\frac{1}{2}$
	15.334	15 $\frac{23}{64}$	195	15.513	15 $\frac{39}{64}$	1.472	1 $\frac{15}{32}$	0.919	5 $\frac{9}{64}$
	15.188	15 $\frac{9}{16}$	185	15.469	15 $\frac{15}{32}$	1.399	1 $\frac{15}{32}$	0.875	$\frac{7}{8}$
	15.042	15 $\frac{3}{8}$	175	15.424	15 $\frac{23}{64}$	1.326	1 $\frac{23}{64}$	0.830	5 $\frac{3}{64}$
	14.896	14 $\frac{57}{64}$	165	15.377	15 $\frac{3}{8}$	1.253	1 $\frac{1}{4}$	0.783	2 $\frac{5}{32}$
	14.750	14 $\frac{3}{4}$	155	15.330	15 $\frac{23}{64}$	1.180	1 $\frac{9}{16}$	0.736	4 $\frac{3}{64}$
	14.602	14 $\frac{39}{64}$	145	15.284	15 $\frac{9}{32}$	1.106	1 $\frac{3}{8}$	0.690	1 $\frac{1}{16}$
	14.452	14 $\frac{29}{64}$	135	15.239	15 $\frac{15}{64}$	1.031	1 $\frac{15}{32}$	0.645	4 $\frac{1}{64}$
	*14.162	14 $\frac{5}{32}$	131	15.468	15 $\frac{15}{32}$	0.886	5 $\frac{3}{64}$	0.874	$\frac{7}{8}$
	14.304	14 $\frac{11}{64}$	125	15.191	15 $\frac{9}{16}$	0.957	6 $\frac{1}{64}$	0.597	1 $\frac{9}{32}$
	14.154	14 $\frac{5}{32}$	115	15.145	15 $\frac{9}{64}$	0.882	$\frac{7}{8}$	0.551	2 $\frac{3}{64}$
	14.018	14 $\frac{1}{64}$	106	15.103	15 $\frac{3}{64}$	0.814	1 $\frac{9}{16}$	0.509	2 $\frac{3}{64}$
	13.866	13 $\frac{59}{64}$	96	15.056	15 $\frac{9}{16}$	0.738	4 $\frac{3}{64}$	0.462	1 $\frac{5}{32}$
	13.714	13 $\frac{27}{32}$	86	15.008	15 $\frac{3}{8}$	0.662	2 $\frac{15}{32}$	0.414	2 $\frac{3}{64}$

\*Special Section for Column Core.

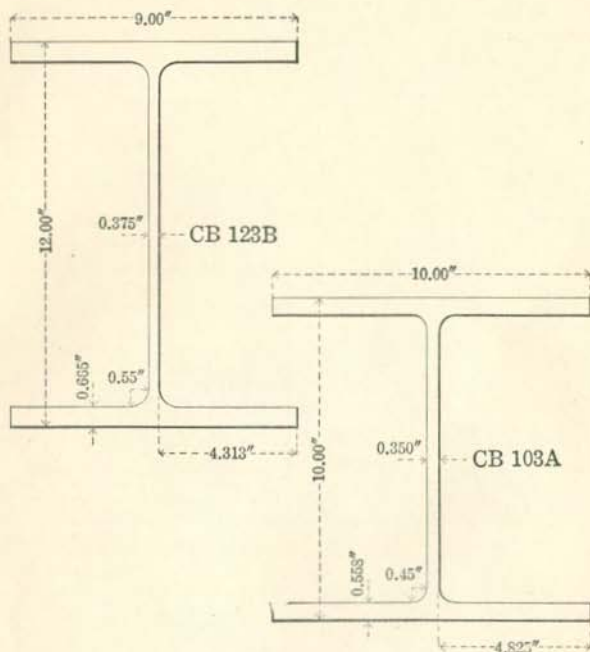


## CARNEGIE BEAM SECTIONS—Continued 1929



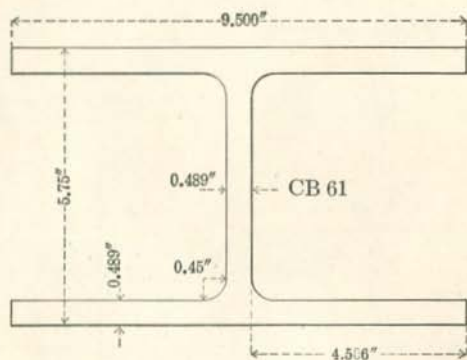
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 124C	12	12	102	12.490	$12\frac{3}{16}$	0.800	$\frac{51}{64}$	0.943	$1\frac{5}{16}$
			95	12.318	$12\frac{5}{16}$			0.771	$\frac{49}{64}$
			88	12.147	$12\frac{9}{16}$			0.600	$1\frac{3}{32}$
			82	12.000	12			0.453	$2\frac{9}{16}$
CB 124B	12	12	76	12.270	$12\frac{3}{16}$	0.608	$\frac{39}{64}$	0.670	$\frac{43}{64}$
			70	12.123	$12\frac{1}{8}$			0.523	$\frac{33}{64}$
			65	12.000	12			0.400	$1\frac{3}{32}$

## CARNEGIE BEAM SECTIONS—Continued



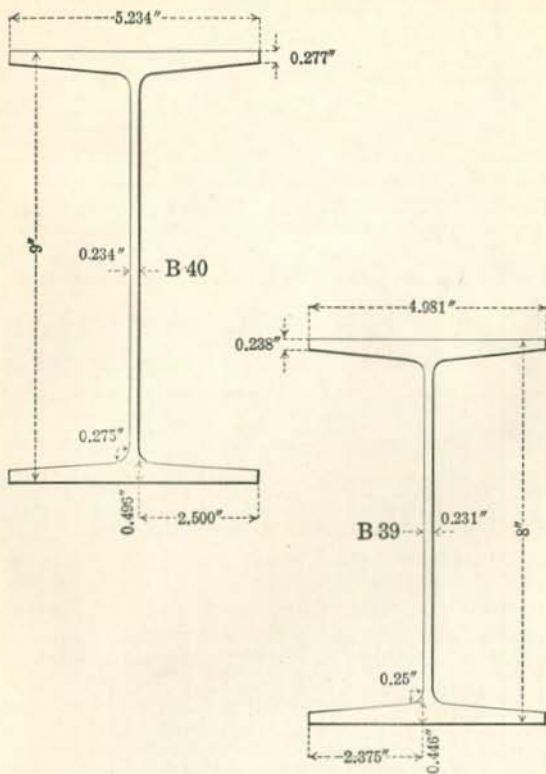
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 123B	12.260	12 <sup>1</sup> / <sub>64</sub>	66	9.073	9 <sup>7</sup> / <sub>4</sub>	0.795	5 <sup>1</sup> / <sub>4</sub>	0.448	2 <sup>9</sup> / <sub>4</sub>
	12.118	12 <sup>3</sup> / <sub>8</sub>	60	9.034	9 <sup>1</sup> / <sub>2</sub>	0.724	2 <sup>3</sup> / <sub>2</sub>	0.409	1 <sup>5</sup> / <sub>2</sub>
	12.000	12	55	9.000	9	0.665	4 <sup>7</sup> / <sub>4</sub>	0.375	3 <sup>1</sup> / <sub>2</sub>
CB 103A	10	10	64	10.441	10 <sup>7</sup> / <sub>16</sub>	0.558	9	0.791	5 <sup>1</sup> / <sub>4</sub>
			59	10.294	10 <sup>1</sup> / <sub>8</sub>			0.644	4 <sup>1</sup> / <sub>4</sub>
			54	10.147	10 <sup>3</sup> / <sub>4</sub>			0.497	3 <sup>1</sup> / <sub>2</sub>
			49	10.000	10			0.350	1 <sup>1</sup> / <sub>2</sub>

## CARNEGIE BEAM SECTIONS—Concluded 1929



Section Index	Depth of Section Inches		Weight per Foot Pounds	Flange Width Inches		Flange Thickness Inches		Web Thickness Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 61	6.842	6 <sup>27</sup> / <sub>32</sub>	88	10.046	10 <sup>1</sup> / <sub>4</sub>	1.035	1 <sup>1</sup> / <sub>2</sub>	1.035	1 <sup>1</sup> / <sub>2</sub>
	6.666	6 <sup>49</sup> / <sub>64</sub>	80	9.959	9 <sup>61</sup> / <sub>64</sub>	.947	<sup>61</sup> / <sub>64</sub>	.948	<sup>61</sup> / <sub>64</sub>
	6.444	6 <sup>7</sup> / <sub>16</sub>	70	9.846	9 <sup>27</sup> / <sub>32</sub>	.836	<sup>27</sup> / <sub>32</sub>	.835	<sup>27</sup> / <sub>32</sub>
	6.216	6 <sup>7</sup> / <sub>32</sub>	60	9.733	9 <sup>47</sup> / <sub>64</sub>	.722	<sup>27</sup> / <sub>32</sub>	.722	<sup>27</sup> / <sub>32</sub>
	5.986	5 <sup>9</sup> / <sub>64</sub>	50	9.617	9 <sup>39</sup> / <sub>64</sub>	.607	<sup>39</sup> / <sub>64</sub>	.606	<sup>39</sup> / <sub>64</sub>
	5.750	5 <sup>3</sup> / <sub>4</sub>	40	9.500	9 <sup>1</sup> / <sub>2</sub>	.489	<sup>3</sup> / <sub>16</sub>	.489	<sup>3</sup> / <sub>16</sub>

## STANDARD MILL SECTIONS



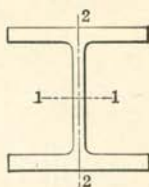
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Mean Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
B 40	9	9	25.0	5.380	5 $\frac{3}{8}$	0.3865	$\frac{25}{64}$	0.380	$\frac{3}{8}$
			20.5	5.234	5 $\frac{1}{4}$			0.234	$\frac{1}{4}$
B 39	8	8	21.0	5.110	5 $\frac{3}{4}$	0.342	$\frac{11}{32}$	0.360	2 $\frac{3}{4}$
			17.5	4.981	5			0.231	$\frac{1}{4}$

## CARNEGIE BEAM SECTIONS

1929



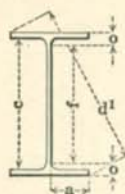
ELEMENTS  
OF  
SECTIONS  
DECIMAL



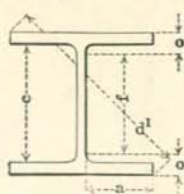
Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
						In. <sup>4</sup>	In. <sup>3</sup>	In.	In. <sup>4</sup>	In. <sup>3</sup>	In.
CB 362 36"	300	88.23	36.851	16.189	.958	20317.7	1102.7	15.18	1215.9	150.2	3.71
	275	80.87	36.550	16.121	.890	18400.2	1006.8	15.08	1095.1	135.9	3.68
	250	73.53	36.243	16.055	.824	16499.3	910.5	14.98	975.4	121.5	3.64
	230	67.65	36.000	16.000	.769	15012.9	834.0	14.90	882.2	110.3	3.61
CB 361 36"	192	56.47	36.645	12.150	.740	12208.5	666.3	14.70	377.2	62.1	2.58
	175	51.47	36.395	12.096	.686	10978.8	603.3	14.61	335.0	55.4	2.55
	160	47.06	36.183	12.045	.635	9933.2	549.1	14.53	299.8	49.8	2.52
	147	43.23	36.000	12.000	.590	9040.4	502.2	14.46	269.9	45.0	2.50
CB 332 33"	260	76.47	33.786	16.150	.870	15037.7	890.2	14.02	1068.0	132.3	3.74
	240	70.58	33.546	16.090	.810	13750.6	819.8	13.96	972.5	120.9	3.71
	220	64.70	33.272	16.046	.766	12385.5	744.5	13.84	870.0	108.4	3.67
	200	58.82	33.000	16.000	.720	11049.6	669.7	13.71	769.5	96.2	3.62
CB 331 33"	167	49.12	33.530	12.179	.719	8836.1	527.1	13.41	321.0	52.7	2.56
	152	44.69	33.342	12.115	.655	7998.5	479.8	13.38	287.8	47.5	2.54
	138	40.58	33.164	12.056	.596	7223.0	435.6	13.34	257.5	42.7	2.52
	125	36.75	33.000	12.000	.540	6514.3	394.8	13.31	230.1	38.4	2.50
CB 301 30"	165	48.52	30.742	10.725	.755	7326.7	476.7	12.29	258.7	48.2	2.31
	151	44.41	30.538	10.662	.692	6663.7	436.4	12.25	233.4	43.8	2.29
	138	40.58	30.344	10.604	.634	6049.5	398.7	12.21	210.1	39.6	2.28
	126	37.05	30.162	10.551	.581	5486.7	363.8	12.17	189.0	35.8	2.26
CB 271 27"	137	40.29	27.742	9.977	.688	4975.9	358.7	11.11	187.1	37.5	2.16
	124	36.47	27.536	9.913	.624	4472.1	324.8	11.07	166.7	33.6	2.14
	112	32.94	27.340	9.855	.566	4007.6	293.2	11.03	148.0	30.0	2.12
	101	29.70	27.166	9.799	.510	3595.7	264.7	11.00	131.7	26.9	2.11
CB 213 21"	91	26.76	27.000	9.750	.461	3217.0	238.3	10.97	116.9	24.0	2.09
	85	25.00	26.820	9.750	.461	2899.3	216.2	10.77	103.0	21.1	2.03
	136	40.00	21.492	13.141	.606	3313.7	308.4	9.10	401.7	61.1	3.17
	128	37.65	21.372	13.105	.570	3103.4	290.4	9.08	375.9	57.4	3.16
CB 212 21"	120	35.28	21.248	13.070	.535	2890.9	272.1	9.05	349.7	53.5	3.15
	112	32.93	21.126	13.034	.499	2683.7	254.1	9.03	324.3	49.8	3.14
	104	30.57	21.000	13.000	.465	2475.3	235.7	9.00	298.7	45.9	3.13
	98	28.82	21.358	9.097	.535	2234.5	209.2	8.80	125.0	27.5	2.08
CB 212 21"	92	27.05	21.240	9.064	.502	2086.4	196.5	8.78	116.3	25.7	2.07
	86	25.28	21.120	9.032	.470	1939.3	183.6	8.76	107.7	23.8	2.06
	80	23.53	21.000	9.000	.438	1794.4	170.9	8.73	99.2	22.0	2.05



CARNEGIE BEAM SECTIONS—Continued



DIMENSIONS  
OF  
SECTIONS  
FRACTIONAL

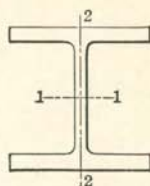


Weight per Foot	Depth of Section	Flange		Web		a	c	Tangent f	o	Diagonal d	Section Index and Nominal Depth
		Width	Thi k- ness	Thick- ness	Thick- ness +						
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
300	36 $\frac{7}{8}$	16 $\frac{1}{4}$	1 $\frac{3}{4}$	1	$\frac{1}{2}$	7 $\frac{7}{8}$	33 $\frac{1}{2}$	31 $\frac{3}{8}$	2 $\frac{3}{4}$	40 $\frac{5}{16}$	CB 362 36"
275	36 $\frac{3}{16}$	16 $\frac{1}{8}$	1 $\frac{9}{16}$	1 $\frac{5}{16}$	$\frac{1}{2}$	7 $\frac{7}{8}$	33 $\frac{1}{2}$	31 $\frac{3}{8}$	2 $\frac{9}{16}$	40	
250	36 $\frac{1}{4}$	16 $\frac{1}{16}$	1 $\frac{7}{16}$	$\frac{7}{8}$	$\frac{7}{16}$	7 $\frac{7}{8}$	33 $\frac{1}{2}$	31 $\frac{3}{8}$	2 $\frac{1}{16}$	39 $\frac{1}{16}$	
230	36	16	1 $\frac{5}{16}$	1 $\frac{3}{16}$	$\frac{7}{16}$	7 $\frac{7}{8}$	33 $\frac{1}{2}$	31 $\frac{3}{8}$	2 $\frac{5}{16}$	39 $\frac{1}{16}$	
192	36 $\frac{1}{16}$	12 $\frac{3}{16}$	1 $\frac{5}{16}$	$\frac{5}{4}$	$\frac{5}{8}$	5 $\frac{3}{4}$	34 $\frac{1}{8}$	32 $\frac{1}{2}$	2 $\frac{3}{16}$	38 $\frac{1}{16}$	CB 361 36"
175	36 $\frac{3}{16}$	12 $\frac{1}{8}$	1 $\frac{5}{16}$	1 $\frac{1}{16}$	$\frac{5}{8}$	5 $\frac{3}{4}$	34 $\frac{1}{8}$	32 $\frac{1}{2}$	2 $\frac{3}{16}$	38 $\frac{1}{16}$	
160	36 $\frac{3}{16}$	12 $\frac{1}{16}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{5}{8}$	5 $\frac{3}{4}$	34 $\frac{1}{8}$	32 $\frac{1}{2}$	2 $\frac{1}{16}$	38 $\frac{3}{16}$	
147	36	12	1 $\frac{1}{16}$	$\frac{5}{8}$	$\frac{5}{16}$	5 $\frac{3}{4}$	34 $\frac{1}{8}$	32 $\frac{1}{2}$	1 $\frac{1}{16}$	38	
260	33 $\frac{1}{16}$	16 $\frac{3}{16}$	1 $\frac{9}{16}$	$\frac{7}{8}$	$\frac{7}{16}$	7 $\frac{1}{16}$	30 $\frac{3}{4}$	28 $\frac{3}{4}$	2 $\frac{3}{16}$	37 $\frac{1}{2}$	CB 332 33"
240	33 $\frac{3}{16}$	16 $\frac{1}{8}$	1 $\frac{7}{16}$	1 $\frac{1}{16}$	$\frac{7}{16}$	7 $\frac{1}{16}$	30 $\frac{3}{4}$	28 $\frac{3}{4}$	2 $\frac{3}{16}$	37 $\frac{1}{4}$	
220	33 $\frac{3}{16}$	16 $\frac{1}{16}$	1 $\frac{5}{16}$	1 $\frac{1}{16}$	$\frac{7}{16}$	7 $\frac{1}{16}$	30 $\frac{3}{4}$	28 $\frac{3}{4}$	2 $\frac{1}{16}$	37	
200	33	16	1 $\frac{1}{8}$	$\frac{5}{4}$	$\frac{5}{8}$	7 $\frac{1}{16}$	30 $\frac{3}{4}$	28 $\frac{3}{4}$	2 $\frac{1}{8}$	36 $\frac{1}{16}$	
167	33 $\frac{3}{16}$	12 $\frac{3}{16}$	1 $\frac{1}{16}$	$\frac{3}{4}$	$\frac{3}{8}$	5 $\frac{3}{4}$	31 $\frac{3}{8}$	29 $\frac{3}{8}$	2 $\frac{1}{16}$	35 $\frac{3}{4}$	CB 331 33"
152	33 $\frac{3}{16}$	12 $\frac{1}{8}$	1	$\frac{3}{4}$	$\frac{3}{8}$	5 $\frac{3}{4}$	31 $\frac{3}{8}$	29 $\frac{3}{8}$	2	35 $\frac{3}{16}$	
138	33 $\frac{3}{16}$	12 $\frac{1}{16}$	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{5}{16}$	5 $\frac{3}{4}$	31 $\frac{3}{8}$	29 $\frac{3}{8}$	1 $\frac{5}{16}$	35 $\frac{5}{16}$	
125	33	12	1 $\frac{1}{16}$	$\frac{9}{16}$	$\frac{5}{16}$	5 $\frac{3}{4}$	31 $\frac{3}{8}$	29 $\frac{3}{8}$	1 $\frac{1}{16}$	35 $\frac{1}{8}$	
165	30 $\frac{3}{4}$	10 $\frac{3}{4}$	1 $\frac{1}{4}$	$\frac{3}{4}$	$\frac{7}{16}$	5	28 $\frac{3}{16}$	26 $\frac{3}{4}$	2	32 $\frac{3}{16}$	CB 301 30"
151	30 $\frac{9}{16}$	10 $\frac{1}{16}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{3}{8}$	5	28 $\frac{3}{16}$	26 $\frac{3}{4}$	1 $\frac{7}{8}$	32 $\frac{3}{8}$	
138	30 $\frac{3}{8}$	10 $\frac{5}{8}$	1 $\frac{1}{16}$	$\frac{5}{8}$	$\frac{3}{8}$	5	28 $\frac{3}{16}$	26 $\frac{3}{4}$	1 $\frac{3}{16}$	32 $\frac{3}{16}$	
126	30 $\frac{3}{16}$	10 $\frac{9}{16}$	1 $\frac{1}{16}$	$\frac{9}{16}$	$\frac{5}{16}$	5	28 $\frac{3}{16}$	26 $\frac{3}{4}$	1 $\frac{1}{16}$	32	
115	30	10 $\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	5	28 $\frac{3}{16}$	26 $\frac{3}{4}$	1 $\frac{5}{8}$	31 $\frac{3}{16}$	
137	27 $\frac{3}{4}$	10	1 $\frac{1}{8}$	1 $\frac{1}{16}$	$\frac{3}{8}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{3}{16}$	29 $\frac{1}{2}$	
124	27 $\frac{9}{16}$	9 $\frac{1}{16}$	1	$\frac{3}{8}$	$\frac{5}{16}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{1}{16}$	29 $\frac{1}{4}$	
112	27 $\frac{3}{8}$	9 $\frac{3}{8}$	1 $\frac{1}{16}$	$\frac{9}{16}$	$\frac{5}{16}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{5}{8}$	29 $\frac{1}{16}$	
101	27 $\frac{1}{16}$	9 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{5}{16}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{1}{2}$	28 $\frac{3}{8}$	
91	27	9 $\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{16}$	$\frac{1}{4}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{1}{16}$	28 $\frac{1}{16}$	
85	26 $\frac{1}{16}$	9 $\frac{3}{4}$	1 $\frac{1}{16}$	$\frac{7}{16}$	$\frac{1}{4}$	4 $\frac{1}{16}$	25 $\frac{1}{16}$	24 $\frac{1}{8}$	1 $\frac{1}{16}$	28 $\frac{3}{16}$	
136	21 $\frac{1}{2}$	13 $\frac{3}{16}$	1 $\frac{1}{16}$	$\frac{5}{8}$	$\frac{5}{16}$	6 $\frac{3}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{3}{16}$	25 $\frac{1}{4}$	CB 213 21"
128	21 $\frac{3}{8}$	13 $\frac{1}{8}$	1	$\frac{5}{8}$	$\frac{5}{16}$	6 $\frac{3}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{3}{8}$	25 $\frac{1}{8}$	
120	21 $\frac{1}{4}$	13 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{9}{16}$	$\frac{5}{16}$	6 $\frac{3}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{1}{16}$	24 $\frac{1}{16}$	
112	21 $\frac{1}{8}$	13 $\frac{1}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	6 $\frac{3}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{5}{8}$	24 $\frac{1}{8}$	
104	21	13	1 $\frac{1}{16}$	$\frac{7}{16}$	$\frac{1}{4}$	6 $\frac{3}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{9}{16}$	24 $\frac{1}{16}$	
98	21 $\frac{3}{8}$	9 $\frac{3}{8}$	1	$\frac{9}{16}$	$\frac{5}{16}$	4 $\frac{5}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{3}{4}$	23 $\frac{1}{4}$	
92	21 $\frac{1}{4}$	9 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{1}{4}$	4 $\frac{5}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{1}{16}$	23 $\frac{1}{8}$	
86	21 $\frac{3}{16}$	9 $\frac{1}{16}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	4 $\frac{5}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{5}{8}$	23	
80	21	9	1 $\frac{1}{16}$	$\frac{7}{16}$	$\frac{1}{4}$	4 $\frac{5}{16}$	19 $\frac{1}{16}$	17 $\frac{7}{8}$	1 $\frac{9}{16}$	22 $\frac{7}{8}$	

## CARNEGIE BEAM SECTIONS—Continued 1929

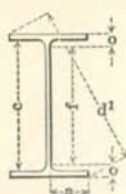


ELEMENTS  
OF  
SECTIONS  
DECIMAL

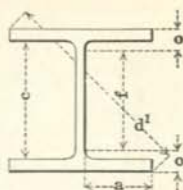


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
						In. <sup>4</sup>	In. <sup>3</sup>	In.	In. <sup>4</sup>	In. <sup>3</sup>	In.
CB 211 21"	76	22.34	21.370	8.109	.469	1684.0	157.6	8.68	70.67	17.4	1.78
	70	20.59	21.248	8.073	.433	1542.9	145.2	8.66	64.3	15.9	1.77
	64	18.82	21.126	8.036	.396	1403.3	132.9	8.64	58.2	14.5	1.76
	58	17.05	21.000	8.000	.360	1263.2	120.3	8.61	52.0	13.0	1.75
	55	16.17	20.890	8.000	.360	1166.7	111.7	8.49	47.29	11.8	1.71
	425	124.99	18.510	16.506	1.912	6420.5	693.7	7.17	2301.0	278.8	4.29
	405	119.12	18.246	16.423	1.829	6010.5	658.8	7.10	2168.2	264.0	4.27
	385	113.22	17.978	16.340	1.746	5609.4	624.0	7.04	2037.4	249.4	4.24
	365	107.34	17.710	16.255	1.661	5221.4	589.7	6.97	1909.1	234.9	4.22
	345	101.47	17.438	16.172	1.578	4843.4	555.5	6.91	1783.5	220.6	4.19
	325	95.58	17.164	16.087	1.493	4475.9	521.6	6.84	1659.9	206.4	4.17
	305	89.70	16.890	16.000	1.406	4121.5	488.0	6.78	1539.1	192.4	4.14
	295	86.76	16.752	15.956	1.362	3948.1	471.4	6.75	1479.4	185.4	4.13
	285	83.82	16.614	15.912	1.318	3778.1	454.8	6.71	1420.7	178.6	4.12
	275	80.87	16.472	15.870	1.276	3607.8	438.1	6.68	1362.0	171.6	4.10
CB 146 14"	265	77.93	16.332	15.826	1.232	3442.4	421.6	6.65	1304.2	164.8	4.09
	255	74.99	16.192	15.781	1.187	3280.0	405.1	6.61	1247.1	158.0	4.08
	245	72.06	16.050	15.738	1.144	3119.6	388.7	6.58	1190.6	151.3	4.06
	235	69.11	15.908	15.693	1.099	2961.9	372.4	6.55	1134.5	144.6	4.05
	225	66.17	15.764	15.650	1.056	2806.2	356.0	6.51	1079.1	137.9	4.04
	215	63.23	15.622	15.604	1.010	2654.7	339.9	6.48	1024.5	131.3	4.03
	205	60.28	15.478	15.559	.965	2505.0	323.7	6.45	970.3	124.7	4.01
	195	57.34	15.334	15.513	.919	2358.2	307.6	6.41	916.8	118.2	4.00
	185	54.41	15.188	15.469	.875	2213.5	291.5	6.38	863.9	111.7	3.98
	175	51.47	15.042	15.424	.830	2071.7	275.5	6.34	811.6	105.2	3.97
	165	48.52	14.896	15.377	.783	1932.6	259.5	6.31	759.9	98.8	3.96
	155	45.58	14.750	15.330	.736	1796.8	243.6	6.28	709.0	92.5	3.94
	145	42.64	14.602	15.284	.690	1662.7	227.7	6.24	658.5	86.2	3.93
	135	39.70	14.452	15.239	.645	1530.4	211.8	6.21	608.4	79.9	3.92
	131	38.52	14.162	15.468	.874	1358.4	191.8	5.94	547.3	70.8	3.77
125	36.75	14.304	15.191	.597	1402.1	196.0	6.18	559.4	73.7	3.90	
115	33.82	14.154	15.145	.551	1275.9	180.3	6.14	510.9	67.5	3.89	
106	31.18	14.018	15.103	.509	1164.1	166.1	6.11	467.6	61.9	3.87	
96	28.23	13.866	15.056	.462	1042.1	150.3	6.08	419.9	55.8	3.86	
86	25.28	13.714	15.008	.414	923.0	134.6	6.04	373.1	49.7	3.84	

CARNEGIE BEAM SECTIONS—Continued



DIMENSIONS  
OF  
SECTIONS  
FRACTIONAL



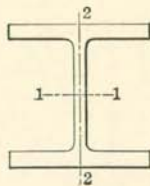
Weight per Foot	Depth of Section	Flange		Web			a	c	Tang- ent f	o	Diago- nal d	Section Index and Nominal Depth
		Width	Thick- ness	Thick- ness	Thick- ness +							
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
76	21 <sup>3</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>13</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	18 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>8</sub>	CB 211 21"	
70	21 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>13</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	18 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	22 <sup>3</sup> / <sub>4</sub>		
64	21 <sup>3</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>13</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	18 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	22 <sup>3</sup> / <sub>4</sub>		
58	21	8	5 <sup>3</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>13</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	18 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	22 <sup>1</sup> / <sub>2</sub>		
55	20 <sup>1</sup> / <sub>2</sub>	8	9 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>13</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	18 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>16</sub>		
425	18 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	1	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>3</sup> / <sub>8</sub>	24 <sup>13</sup> / <sub>16</sub>	CB 146 14"	
405	18 <sup>1</sup> / <sub>4</sub>	16 <sup>7</sup> / <sub>8</sub>	2 <sup>13</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>3</sup> / <sub>8</sub>	24 <sup>9</sup> / <sub>16</sub>		
385	18	16 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>1</sup> / <sub>4</sub>	24 <sup>5</sup> / <sub>16</sub>		
365	17 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>3</sup> / <sub>8</sub>	24 <sup>1</sup> / <sub>16</sub>		
345	17 <sup>1</sup> / <sub>4</sub>	16 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>3</sup> / <sub>16</sub>	23 <sup>13</sup> / <sub>16</sub>		
325	17 <sup>3</sup> / <sub>8</sub>	16 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	3 <sup>1</sup> / <sub>16</sub>	23 <sup>9</sup> / <sub>16</sub>		
305	16 <sup>3</sup> / <sub>8</sub>	16	2 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>16</sub>	23 <sup>5</sup> / <sub>16</sub>		
295	16 <sup>1</sup> / <sub>4</sub>	15 <sup>13</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>7</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>8</sub>		
285	16 <sup>5</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>13</sup> / <sub>16</sub>	23		
275	16 <sup>1</sup> / <sub>2</sub>	15 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>3</sup> / <sub>4</sub>	22 <sup>7</sup> / <sub>8</sub>		
265	16 <sup>9</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	2	1 <sup>3</sup> / <sub>4</sub>	9 <sup>8</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>16</sub>	22 <sup>3</sup> / <sub>8</sub>		
255	16 <sup>3</sup> / <sub>16</sub>	15 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>2</sub>	9 <sup>8</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>5</sup> / <sub>8</sub>	22 <sup>5</sup> / <sub>8</sub>		
245	16 <sup>1</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>4</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>2</sub>	9 <sup>8</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>9</sup> / <sub>16</sub>	22 <sup>1</sup> / <sub>8</sub>		
235	15 <sup>13</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>2</sub>	22 <sup>3</sup> / <sub>8</sub>		
225	15 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>5</sup> / <sub>8</sub>	22 <sup>1</sup> / <sub>4</sub>		
215	15 <sup>5</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>2</sub>	1	9 <sup>1</sup> / <sub>16</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>5</sup> / <sub>16</sub>	22 <sup>1</sup> / <sub>8</sub>		
205	15 <sup>1</sup> / <sub>2</sub>	15 <sup>9</sup> / <sub>16</sub>	1 <sup>9</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>4</sub>	21 <sup>13</sup> / <sub>16</sub>		
195	15 <sup>9</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>3</sup> / <sub>16</sub>	21 <sup>9</sup> / <sub>16</sub>		
185	15 <sup>3</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>2</sub>	7 <sup>8</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>		
175	15 <sup>1</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	1 <sup>9</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>16</sub>	21 <sup>9</sup> / <sub>16</sub>		
165	14 <sup>3</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	1 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>13</sup> / <sub>16</sub>	21 <sup>7</sup> / <sub>8</sub>		
155	14 <sup>1</sup> / <sub>8</sub>	15 <sup>9</sup> / <sub>16</sub>	1 <sup>9</sup> / <sub>16</sub>	3 <sup>4</sup> / <sub>8</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>7</sup> / <sub>8</sub>	21 <sup>3</sup> / <sub>8</sub>		
145	14 <sup>5</sup> / <sub>8</sub>	15 <sup>9</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>13</sup> / <sub>16</sub>	21 <sup>3</sup> / <sub>8</sub>		
135	14 <sup>1</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>4</sub>	1	5 <sup>8</sup> / <sub>16</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>1</sup> / <sub>4</sub>	21		
131	14 <sup>3</sup> / <sub>16</sub>	15 <sup>3</sup> / <sub>16</sub>	7 <sup>8</sup> / <sub>16</sub>	7 <sup>8</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>5</sup> / <sub>8</sub>	21		
125	14 <sup>9</sup> / <sub>16</sub>	15 <sup>9</sup> / <sub>16</sub>	1 <sup>9</sup> / <sub>16</sub>	3 <sup>4</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>1</sup> / <sub>16</sub>	20 <sup>7</sup> / <sub>8</sub>		
115	14 <sup>1</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	7 <sup>8</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>9</sup> / <sub>16</sub>	20 <sup>3</sup> / <sub>4</sub>		
106	14	15 <sup>1</sup> / <sub>2</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>1</sup> / <sub>2</sub>	20 <sup>5</sup> / <sub>8</sub>		
96	13 <sup>7</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>3</sup> / <sub>16</sub>	20 <sup>1</sup> / <sub>2</sub>		
86	13 <sup>1</sup> / <sub>2</sub>	15	1 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>8</sub>	11	1 <sup>3</sup> / <sub>8</sub>	20 <sup>3</sup> / <sub>8</sub>		

## CARNEGIE BEAM SECTIONS—Continued

1929



ELEMENTS  
OF  
SECTIONS  
DECIMAL



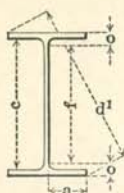
Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
						In. <sup>4</sup>	In. <sup>3</sup>	In.	In. <sup>4</sup>	In. <sup>3</sup>	In.
CB 124C 12"	102	29.99	12.000	12.490	.943	721.4	120.2	4.90	260.6	41.7	2.95
	95	27.93	12.000	12.318	.771	696.6	116.1	4.99	249.7	40.5	2.99
	88	25.88	12.000	12.147	.600	672.0	112.0	5.10	239.2	39.4	3.04
	82	24.11	12.000	12.000	.453	650.8	108.5	5.20	230.5	38.4	3.09
CB 124B 12"	76	22.35	12.000	12.270	.670	560.2	93.4	5.01	187.5	30.6	2.90
	70	20.58	12.000	12.123	.523	539.0	89.8	5.12	180.7	29.8	2.96
	65	19.11	12.000	12.000	.400	521.3	86.9	5.22	175.2	29.2	3.03
CB 123B 12"	66	19.41	12.260	9.073	.448	525.7	85.8	5.20	99.1	21.8	2.26
	60	17.65	12.118	9.034	.409	472.0	77.9	5.17	89.0	19.7	2.25
	55	16.17	12.000	9.000	.375	428.4	71.4	5.15	80.9	18.0	2.24
CB 103A 10"	64	18.81	10.000	10.441	.791	308.8	61.8	4.05	106.3	20.4	2.38
	59	17.34	10.000	10.294	.644	296.5	59.3	4.13	101.7	19.8	2.42
	54	15.87	10.000	10.147	.497	284.3	56.9	4.23	97.3	19.2	2.48
	49	14.40	10.000	10.000	.350	272.0	54.4	4.35	93.0	18.6	2.54
CB 61 6"	88	25.87	6.842	10.046	1.035	187.3	54.7	2.69	175.4	34.9	2.60
	80	23.52	6.666	9.959	.948	164.9	49.5	2.65	156.3	31.4	2.58
	70	20.58	6.444	9.846	.835	138.7	43.0	2.60	133.3	27.1	2.54
	60	17.63	6.216	9.733	.722	113.9	36.7	2.54	111.1	22.8	2.51
	50	14.70	5.986	9.617	.606	91.0	30.4	2.49	90.1	18.7	2.48
	40	11.76	5.750	9.500	.489	69.6	24.2	2.43	69.9	14.7	2.44

## STANDARD MILL SECTIONS

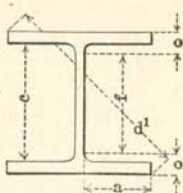
B 40 9"	25.0	7.34	9.000	5.380	.380	95.5	21.2	3.61	8.8	3.3	1.09
	20.5	6.02	9.000	5.234	.234	86.6	19.2	3.79	8.0	3.1	1.15
B 39 8"	21.0	6.17	8.000	5.110	.360	63.4	15.9	3.21	6.6	2.6	1.03
	17.5	5.14	8.000	4.981	.231	57.4	14.5	3.36	6.0	2.4	1.08



CARNEGIE BEAM SECTIONS—Continued



DIMENSIONS OF SECTIONS FRACTIONAL



Weight per Foot	Depth of Section	Flange		Web		a	c	Tangent f	o	Diagonal d	Section Index and Nominal Depth
		Width	Thick-ness	Thick-ness	Thick-ness +						
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
102	12	12 1/4	1 3/16	1 3/16	1/2	5 1/4	10 3/8	9 1/4	1 3/8	17 3/8	CB 124C 12"
95	12	12 5/16	1 3/16	3/4	7/16	5 1/4	10 3/8	9 1/4	1 3/8	17 1/4	
88	12	12 3/16	1 3/16	5/8	5/16	5 1/4	10 3/8	9 1/4	1 3/8	17 3/8	
82	12	12	1 3/16	1/2	1/4	5 1/4	10 3/8	9 1/4	1 3/8	17	
76	12	12 1/4	5/8	1 1/16	3/8	5 1/4	10 3/4	9 5/8	1 3/16	17 3/16	CB 124B 12"
70	12	12 1/8	5/8	9/16	5/16	5 1/4	10 3/4	9 5/8	1 3/16	17 1/16	
65	12	12	5/8	7/16	1/4	5 1/4	10 3/4	9 5/8	1 3/16	17	
66	12 1/4	9 1/8	1 3/16	1/2	1/4	4 5/16	10 5/8	9 1/2	1 3/8	15 5/16	CB 123B 12"
60	12 1/8	9 1/16	3/4	7/16	1/4	4 5/16	10 5/8	9 1/2	1 3/16	15 1/8	
55	12	9	1 1/16	3/8	3/16	4 5/16	10 5/8	9 1/2	1 1/4	15	
64	10	10 7/16	9/16	1 3/16	7/16	4 7/8	8 7/8	7 1/2	1 3/16	14 1/2	CB 103A 10"
59	10	10 5/16	9/16	1 1/16	3/8	4 7/8	8 7/8	7 1/2	1 3/16	14 3/8	
54	10	10 3/16	9/16	1/2	1/4	4 7/8	8 7/8	7 1/2	1 1/16	14 1/4	
49	10	10	9/16	3/8	3/16	4 7/8	8 7/8	7 1/2	1 3/16	14 3/16	
88	6 13/16	10 1/16	1 1/16	1 1/16	9/16	4 1/2	4 3/4	3 3/4	1 1/2	12 3/16	CB 61 6"
80	6 1/16	9 1/16	1 1/16	1 1/16	1/2	4 1/2	4 3/4	3 3/4	1 7/16	12	
70	6 7/16	9 3/8	7/8	7/8	7/16	4 1/2	4 3/4	3 3/4	1 5/16	11 13/16	
60	6 3/16	9 3/4	3/4	3/4	3/8	4 1/2	4 3/4	3 3/4	1 3/16	11 9/16	
50	6	9 5/8	5/8	5/8	5/16	4 1/2	4 3/4	3 3/4	1 1/8	11 3/8	
40	5 3/4	9 1/2	1/2	1/2	1/4	4 1/2	4 3/4	3 3/4	1	11 1/8	

STANDARD MILL SECTIONS

25.0	9	5 3/8	3/8	3/8	1/4	2 1/2	.....	7 1/2	3/4	10 1/2	B 40
20.5	9	5 1/4	3/8	3/4	1/8	2 1/2	.....	7 1/2	3/4	10 7/16	9"
21.0	8	5 1/8	5/16	3/8	3/16	2 3/8	.....	6 5/8	1 1/16	9 1/2	B 39
17.5	8	5	9/16	1/4	1/8	2 3/8	.....	6 5/8	1 1/16	9 7/16	8"



## CARNEGIE BEAM SECTIONS—Continued

1929

## MAXIMUM BENDING MOMENTS AND WEB RESISTANCES

Bending Stress 18,000 Pounds—Shearing Stress 12,000 Pounds

Section Index and Nominal Depth	Depth of Beam	Weight per Foot	Web Thickness	Maximum Bending Moment	Web Resistance			Mini. End Bearing	End Reaction $a=3\frac{1}{2}$
					Web Shear	Mini. Span	Web Buckling		
					V		fb		
					M max.		a		
	d		t	M max.	V		fb	a	R
	Inches	Pounds	Inches	Foot Pounds	Pounds	Feet	Pounds per Sq. In.	Inches	Pounds
CB 362 36"	36.851	300	.958	1654044	423636	15.62	14439	21.412	175859
	36.550	275	.890	1510275	390360	15.48	14050	22.078	158038
	36.243	250	.824	1365722	358368	15.24	13612	22.890	140884
	36.000	230	.769	1251072	332208	15.06	13184	23.769	126725
CB 361 36"	36.645	192	.740	999470	325404	12.29	12778	25.251	119722
	36.395	175	.686	904970	299604	12.08	12252	26.547	105895
	36.183	160	.635	823581	275712	11.95	11680	28.127	93054
	36.000	147	.590	753371	254880	11.82	11108	29.889	81925
CB 332 33"	33.786	260	.870	1335264	352728	15.14	14384	19.740	149505
	33.546	240	.810	1229720	326064	15.09	13998	20.372	134775
	33.272	220	.766	1116747	305832	14.61	13694	20.837	123971
	33.000	200	.720	1004513	285120	14.09	13332	21.453	112788
CB 331 33"	33.530	167	.719	790584	289296	10.93	13211	22.072	112877
	33.342	152	.655	719675	262068	10.99	12571	23.492	97458
	33.164	138	.596	653388	237192	11.02	11873	25.230	83433
	33.000	125	.540	592211	213840	11.08	11095	27.444	70394
CB 301 30"	30.742	165	.755	715050	278520	10.27	14103	18.470	119110
	30.538	151	.692	654600	253590	10.32	13589	19.330	104710
	30.344	138	.634	598050	230860	10.36	13027	20.370	91560
	30.162	126	.581	545700	210290	10.38	12421	21.600	79680
	30.000	115	.530	498600	190800	10.45	11734	23.180	68410
CB 271 27"	27.742	137	.688	538050	229040	9.40	14162	16.570	101680
	27.536	124	.624	487200	206190	9.45	13590	17.430	88060
	27.340	112	.566	439800	185690	9.47	12960	18.480	75810
	27.166	101	.510	397050	166260	9.55	12221	19.880	64140
	27.000	91	.461	357450	149360	9.57	11453	21.540	54120
	26.820	85	.461	324309	148368	8.74	11508	21.263	54138

## CARNEGIE BEAM SECTIONS—Continued

## MAXIMUM BENDING MOMENTS AND WEB RESISTANCES

Bending Stress 18,000 Pounds—Shearing Stress 12,000 Pounds

Section Index and Nominal Depth	Depth of Beam	Weight per Foot	Web Thickness	Maximum Bending Moment	Web Resistance			Mini. End Bearing	End Reaction $a=3\frac{1}{2}$
					Web Shear	Mini. Span	Web Buckling		
	d		t	M max.	V		fb	a	R
	Inches	Pounds	Inches	Foot Pounds	Pounds	Feet	Pounds per Sq. In.	Inches	Pounds
CB 213 21"	21.492	136	.606	462554	156288	11.84	14881	11.958	80017
	21.372	128	.570	435621	146184	11.92	14583	12.244	73563
	21.248	120	.535	408150	136410	11.97	14253	12.580	67190
	21.126	112	.499	381150	126500	12.05	13860	13.010	60730
	21.000	104	.465	353550	117180	12.07	13434	13.510	54660
CB 212 21"	21.358	98	.535	313866	137124	9.16	14223	12.681	67264
	21.240	92	.502	294750	127950	9.21	13864	13.070	61320
	21.120	86	.470	275400	119120	9.25	13468	13.540	55580
	21.000	80	.438	256350	110380	9.29	13014	14.110	49880
CB 211 21"	21.370	76	.469	236403	120276	7.86	13373	13.834	55463
	21.248	70	.433	217800	110400	7.89	12845	14.540	49010
	21.126	64	.396	199350	100390	7.94	12209	15.480	42460
	21.000	58	.360	180450	90720	7.96	11486	16.690	36180
	20.890	55	.360	167549	90240	7.43	11530	16.516	36209
CB 124C 12"	12.000	102	.943	180300	135790	5.31	15000	6.600	91940
	12.000	95	.771	174150	111020	6.27	15000	6.600	75170
	12.000	88	.600	168000	86400	7.78	15000	6.600	58500
	12.000	82	.453	162750	65230	9.98	15000	6.600	44170
CB 124B 12"	12.000	76	.670	140100	96480	5.81	15000	6.600	65320
	12.000	70	.523	134700	75310	7.15	15000	6.600	50990
	12.000	65	.400	130350	57600	9.05	15000	6.600	39000
CB 123B 12"	12.260	66	.448	128700	65910	7.81	15000	6.740	44120
	12.118	60	.409	116850	59470	7.86	15000	6.660	40060
	12.000	55	.375	107100	54000	7.93	15000	6.600	36560
CB 103A 10"	10.000	64	.791	92700	94920	3.91	15000	5.500	71190
	10.000	59	.644	88950	77280	4.60	15000	5.500	57960
	10.000	54	.497	85350	59640	5.72	15000	5.500	44730
	10.000	49	.350	81600	42000	7.77	15000	5.500	31500

## STANDARD MILL SECTIONS

B 40 9"	9.000	25.0	.380	31800	41040	3.10	15000	4.950	32770
	9.000	20.5	.234	28800	25270	4.56	14440	5.230	19430
B 39 8"	8.000	21.0	.360	23850	34560	2.76	15000	4.400	29700
	8.000	17.5	.231	21450	22180	3.87	15000	4.400	19460

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 362 36"x16"								
	300 lbs.		275 lbs.		250 lbs.		230 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	847	847	781	781	717	717	664	664	
16	827	827	755	755	683	683	626	626	
17	778	778	711	711	643	643	589	589	5.381
18	735	735	671	671	607	607	556	556	6.033
19	696	696	636	636	575	575	527	527	6.722
20	662	662	604	604	546	546	500	500	7.448
21	630	625	575	569	520	514	477	471	8.212
22	601	590	549	537	497	486	455	445	9.012
23	575	559	525	508	475	459	435	421	9.850
24	551	529	503	483	455	435	417	399	10.726
25	529	502	483	459	437	413	400	378	11.638
26	509	477	465	436	420	392	385	359	12.588
27	490	454	447	414	405	373	371	342	13.574
28	473	432	431	395	390	355	357	325	14.599
29	456	412	417	376	377	339	345	310	15.660
30	441	393	403	359	364	323	334	296	16.759
31	427	375	390	342	352	308	323	282	17.894
32	414	358	378	327	341	295	313	270	19.068
33	401	343	366	313	331	282	303	258	20.278
34	389	328	355	299	321	269	294	247	21.526
35	378	314	345	287	312	258	286	236	22.810
36	368	301	336	275	304	247	278	226	24.132
37	358	288	327	263	295	237	270	217	25.492
38	348	277	318	253	288	227	263	208	26.888
39	339	265	310	242	280	218	257	200	28.322
40	331	255	302	233	273	209	250	192	29.793
42	315	235	288	215	260	193	238	177	32.847
44	301	219	275	199	248	179	227	164	36.050
46	288	203	263	184	238	165	218	152	39.401
48	276	188	252	171	228	153	209	141	42.902
50	265	175	242	159	219	143	200	131	46.552
52	254	162	232	147	210	133	192	121	50.350
54	245		224		202		185		54.298
56	236		216		195		179		58.395
58	228		208		188		173		62.640
60	221		201		182		167		67.034
62	213		195		176		161		71.578
64	207		189		171		156		76.270
66	200		183		166		152		81.112
68	195		178		161		147		86.102

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 361 36"x12"								
	192 lbs.		175 lbs.		160 lbs.		147 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
12	651	651	599	599	551	551	510	510	2.681
13	615	615	557	557	549	549	502	502	3.147
14	571	571	517	517	471	471	464	464	3.650
15	533	533	483	483	439	439	430	430	4.190
16	500	494	452	447	412	406	377	371	4.767
17	470	458	426	415	388	376	354	344	5.381
18	444	426	402	386	366	350	335	320	6.033
19	421	398	381	360	347	326	317	299	6.722
20	400	372	362	337	330	306	301	279	7.448
21	381	348	345	315	314	286	287	261	8.212
22	363	327	329	296	300	268	274	245	9.012
23	348	307	315	278	286	252	262	230	9.850
24	333	289	302	261	275	237	251	217	10.726
25	320	272	290	246	264	223	241	204	11.638
26	308	257	278	232	253	210	232	192	12.588
27	296	242	268	219	244	199	223	182	13.574
28	286	229	259	207	235	188	215	172	14.599
29	276	217	250	196	227	178	208	163	15.660
30	267	205	241	186	220	168	201	154	16.759
31	258	196	234	176	213	160	194	146	17.894
32	250	186	226	167	206	151	188	138	19.068
33	242	176	219	159	200	144	183	131	20.278
34	235	167	213	151	194	137	177	125	21.526
35	228	159	207	143	188	130	172	119	22.810
36	222	151	201	136	183	124	167	113	24.132
37	216	144	196	130	178	118	163	107	25.492
38	210	137	191	124	173	113	159	102	26.888
39	205	131	186	118	169	107	155	98	28.322
40	200	125	181	112	165	102	151		29.793
42	190		172		157		143		32.847
44	182		165		150		137		36.050
46	174		157		143		131		39.401
48	167		151		137		126		42.902
50	160		145		132		121		46.552
52	154		139		127		116		50.350
54	148		134		122		112		54.298
56	143		129		118		108		58.395
58	138		125		114		104		62.640
60	133		121		110		100		67.035
62	129		117		106		97		71.578
64	125		113		103		94		76.270
66	121		110		100		91		81.112
68	118		106		97		89		86.102

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



## CARNEGIE BEAM SECTIONS—Continued

## ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 332 33"x16"								
	260 lbs.		240 lbs.		220 lbs.		200 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
15	705	705	652	652	612	612	570	570	4.190
16	668	668	615	615	558	558	502	502	4.767
17	628	628	579	579	526	526	473	473	5.381
18	593	593	547	547	496	496	446	446	6.033
19	562	562	518	518	470	470	423	423	6.722
20	534	534	492	492	447	447	402	401	7.448
21	509	505	468	463	425	421	383	378	8.212
22	486	477	447	437	406	397	365	357	9.012
23	464	451	428	414	388	376	349	338	9.850
24	445	427	410	392	372	356	335	320	10.726
25	427	405	394	372	357	338	321	304	11.638
26	411	385	378	353	344	321	309	289	12.588
27	396	366	364	336	331	305	298	274	13.574
28	382	349	351	320	319	290	287	261	14.599
29	368	332	339	305	308	277	277	249	15.660
30	356	317	328	292	298	264	268	238	16.759
31	345	303	317	279	288	252	259	227	17.894
32	334	289	307	266	279	241	251	217	19.068
33	324	277	298	255	271	230	244	207	20.278
34	314		289		263		236		21.526
35	305		281		255		230		22.810
36	297		273		248		223		24.132
37	289		266		241		217		25.492
38	281		259		235		211		26.888
39	274		252		229		206		28.322
40	267		246		223		201		29.793
42	254		234		213		191		32.847
44	243		224		203		183		36.050
46	232		214		194		175		39.401
48	223		205		186		167		42.902
50	214		197		179		161		46.552
52	205		189		172		155		50.350
54	198		182		165		149		54.298
56	191		176		160		144		58.395
58	184		170		154		139		62.640
60	178		164		149		134		67.035
62	172		159		144		130		71.578
64	167		154		140		126		76.270

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 331 33"x12"								
	167 lbs.		152 lbs.		138 lbs.		125 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	579	579	524	524					
11	575	575	523	523	474	474	428	428	2.253
12	527	527	480	480	436	436	395	395	2.681
13	487	487	443	443	402	402	364	364	3.147
14	452	452	411	411	373	373	338	338	3.650
15	422	422	384	384	348	348	316	315	4.190
16	395	391	360	356	327	322	296	292	4.767
17	372	363	339	330	307	299	279	271	5.381
18	351	337	320	307	290	278	263	252	6.033
19	333	315	303	286	275	259	249	235	6.722
20	316	294	288	268	261	242	237	219	7.448
21	301	275	274	251	249	227	226	205	8.212
22	288	258	262	235	238	213	215	193	9.012
23	275	243	250	221	227	200	206	181	9.850
24	264	228	240	208	218	188	197	170	10.726
25	253	215	230	196	209	177	190	160	11.638
26	243	204	221	185	201	167	182	151	12.588
27	234	193	213	174	194	158	175	143	13.574
28	226	182	206	165	187	150	169	135	14.599
29	218	172	199	156	180	142	163	128	15.660
30	211	163	192	148	174	134	158	121	16.759
31	204	155	186	140	169	127	153	115	17.894
32	198	147	180	133	163	121	148	109	19.068
33	192	139	174	126	158	115	144	103	20.278
34	186	132	169	120	154	109	139	98	21.526
35	181	126	165	114	149	103	135	93	22.810
36	176	120	160	108	145	98	132	89	24.132
37	171	114	156	103	141	94	128	84	25.492
38	166	109	152	98	138	89	125	80	26.888
39	162	104	148	94	134	85	121	77	28.322
40	158	99	144	90	131	81	118		29.793
42	151		137		124		113		32.847
44	144		131		119		108		36.050
46	138		125		114		103		39.401
48	132		120		109		99		42.902
50	127		115		105		95		46.552
52	122		111		101		91		50.350
54	117		107		97		88		54.298
56	113		103		93		85		58.395
58	109		99		90		82		62.640
60	105		96		87		79		67.035
62	102		93		84		76		71.578
64	99		90		82		74		76.270

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 301 30"x10½"										
	165 lbs.		151 lbs.		138 lbs.		126 lbs.		115 lbs.		
	Laterally										
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
557	557	507	507	462	462	421	421	382	382		
11	520	520	476	476	435	435	397	397	363	363	2.253
12	477	477	436	436	399	399	364	364	332	332	2.681
13	440	440	403	403	368	368	336	336	307	307	3.147
14	409	404	374	370	342	338	312	307	285	281	3.650
15	381	372	349	339	319	310	291	283	266	257	4.190
16	358	342	327	313	299	286	273	260	249	237	4.767
17	336	317	308	289	281	264	257	241	235	219	5.381
18	318	293	291	268	266	245	243	223	222	203	6.033
19	301	273	276	249	252	227	230	207	210	189	6.722
20	286	254	262	232	239	211	218	193	199	176	7.448
21	272	237	249	216	228	197	208	179	190	164	8.212
22	260	222	238	202	217	184	198	168	181	153	9.012
23	249	208	228	189	208	173	190	157	173	143	9.850
24	238	195	218	178	199	162	182	147	166	134	10.726
25	229	183	209	166	191	152	175	138	160	126	11.638
26	220	172	201	157	184	142	168	130	153	118	12.588
27	212	162	194	147	177	134	162	122	148	111	13.574
28	204	153	187	139	171	126	156	115	142	105	14.599
29	197	143	181	131	165	119	151	108	138	98	15.660
30	191	136	175	124	159	112	145	102	133	93	16.759
31	185	128	169	116	154	106	141	97	129	88	17.894
32	179	121	164	110	150	100	136	91	125	83	19.068
33	173	114	159	104	145	95	132	86	121	78	20.278
34	168	109	154	99	141	90	128	81	117	74	21.526
35	163	103	150	93	137	85	125	77	114	70	22.810
36	159		145		133		121		111		24.132
37	155		142		129		118		108		25.492
38	151		138		126		115		105		26.888
39	147		134		123		112		102		28.322
40	143		131		120		109		100		29.793
41	140		128		117		106		97		31.301
42	136		125		114		104		95		32.847
43	133		122		111		102		93		34.430
44	130		119		109		99		91		36.050
45	127		116		106		97		89		37.707
46	124		114		104		95		87		39.401
47	122		111		102		93		85		41.133
48	119		109		100		91		83		42.902
49	117		107		98		89		81		44.708
50	114		105		96		87		80		46.552
51	112		103		94		86		78		48.432
52	110		101		92		84		77		50.350
53	108		99		90		82		75		52.306
54	106		97		89		81		74		54.298
55	104						79		73		56.328
56	102		95		87		78		71		58.395
57	100		92		84		77		70		60.499
58	99		90		82		75		69		62.640

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection	
	CB 271 27"x9 $\frac{3}{4}$ "													
	137 lbs.		124 lbs.		112 lbs.		101 lbs.		91 lbs.		85 lbs.			
	Laterally													
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
9	458	458	412	412	371	371	333	333	299	299	297	288	288	1.508
10	430	430	390	390	352	352	318	318	286	286	297	259	259	1.862
11	391	391	354	354	320	320	289	289	260	260	236	236	236	2.253
12	359	359	325	325	293	293	265	265	238	238	216	216	216	2.681
13	331	327	300	296	271	268	244	241	220	217	200	197	197	3.147
14	307	300	278	270	251	244	227	219	204	198	185	179	179	3.650
15	287	274	260	247	235	223	212	202	191	181	173	164	164	4.190
16	269	252	244	228	220	206	199	185	179	166	162	151	151	4.767
17	253	232	229	211	207	189	187	171	168	153	153	139	139	5.381
18	239	215	217	197	195	175	176	158	159	141	144	128	128	6.033
19	227	200	205	180	185	162	167	146	151	131	137	119	119	6.722
20	215	186	195	167	176	151	159	136	143	122	130	111	111	7.448
21	205	173	186	156	168	140	151	126	136	114	124	103	103	8.212
22	196	161	177	145	160	131	144	118	130	106	118	96	96	9.012
23	187	150	169	136	153	122	138	110	124	99	113	90	90	9.850
24	179	141	162	127	147	114	132	102	119	92	108	84	84	10.726
25	172	132	156	119	141	107	127	96	114	86	104	78	78	11.638
26	166	124	150	111	135	100	122	90	110	81	100	73	73	12.588
27	159	116	144	104	130	94	118	85	106	76	96	69	69	13.574
28	154	109	139	98	126	88	113	79	102	71	93	65	65	14.599
29	148	102	134	93	121	83	110	75	99	67	89	61	61	15.660
30	143	97	130	87	117	78	106	70	95	63	86	57	57	16.759
31	139	91	126	82	113	74	102	66	92	59	84	54	54	17.894
32	135	86	122	77	110	69	99	62	89	56	81	51	51	19.068
33	130	81	118	73	107	66	96	60	87	54	79	49	49	20.278
34	127	78	115	70	103	63	93	58	84	52	76	47	47	21.526
35	123	75	111	67	101	61	91	56	82	50	74	45	45	22.810
36	120	73	108	65	98	59	88	54	79	49	72	44	44	24.132
37	116	71	105	63	95	57	86	52	77	48	70	43	43	25.492
38	113	69	103	61	93	55	84	50	75	47	68	42	42	26.888
39	110	67	100	59	90	53	81	49	73	46	67	41	41	28.322
40	108	65	97	57	88	51	79	47	71	45	65	40	40	29.793
41	105	63	95	55	86	50	77	46	70	44	63	39	39	31.301
42	102	61	93	53	84	48	76	44	68	43	62	38	38	32.847
43	100	60	91	52	82	47	74	43	67	42	60	37	37	34.430
44	98	58	89	50	80	46	72	42	65	41	59	36	36	36.050
45	96	57	87	49	78	45	71	41	64	40	58	35	35	37.707
46	94	55	85	47	76	44	69	40	62	39	56	34	34	39.401
47	92	54	83	46	75	43	68	39	61	38	55	33	33	41.133
48	90	52	81	44	73	42	66	38	60	37	54	32	32	42.902
49	88	51	80	43	72	41	65	37	59	36	53	31	31	44.708
50	86	50	78	42	70	40	64	36	57	35	52	30	30	46.552
51	84	49	76	41	69	39	62	35	56	34	51	29	29	48.432
52	83	48	75	40	68	38	61	34	55	33	50	28	28	50.350

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 213 21"x13"										
	136 lbs.		128 lbs.		120 lbs.		112 lbs.		104 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	313	313	292	292	273	273					
12	308	308	290	290	272	272	253	253	234	234	2.681
13	285	285	268	268	251	251	235	235	218	218	3.147
14	264	264	249	249	233	233	218	218	202	202	3.650
15	247	247	232	232	218	218	203	203	189	189	4.190
16	231	231	218	218	204	204	191	191	177	177	4.767
17	218	216	205	203	192	191	179	178	166	164	5.381
18	206	201	194	189	181	177	169	166	157	154	6.033
19	195	188	183	177	172	166	160	155	149	143	6.722
20	185	176	174	166	163	156	152	145	141	134	7.448
21	176	165	166	156	155	146	145	136	135	126	8.212
22	168	156	158	146	148	137	139	128	129	119	9.012
23	161	146	152	138	142	129	133	120	123	111	9.850
24	154	138	145	130	136	122	127	114	118	105	10.726
25	148	131	139	122	131	115	122	107	113	99	11.638
26	142	123	134	116	126	109	117	101	109	94	12.588
27	137	117	129	110	121	103	113	96	105	89	13.574
28	132	111	124	104	117	97	109	91	101	84	14.599
29	128	105	120	99	113	92	105	86	98	80	15.660
30	123	99	116	94	109	88	102	82	94	76	16.759
31	119	95	112	89	105	83	98	78	91	72	17.894
32	116	90	109	85	102	79	95	74	88	68	19.068
33	112	85	106	80	99	75	92	70	86	65	20.278
34	109	82	102	77	96	72	90	67	83	62	21.526
35	106	78	100	73	93	68	87	64	81	59	22.810
36	103	74	97	70	91	65	85	61	79	56	24.132
37	100	71	94	66	88	62	82	58	76	54	25.492
38	97	67	92	64	86	59	80	74			26.888
39	95		89		84		78	73			28.322
40	93		87		82		76	71			29.793

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 212 21"x9"								
	98 lbs.		92 lbs.		86 lbs.		80 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
10	274	274	256	256	238	238	221	221	1.862
	251	251	236	236	220	220	205	205	
11	228	228	214	214	200	200	186	186	2.253
12	209	207	196	194	184	181	171	168	2.681
13	193	187	181	175	170	164	158	153	3.147
14	179	170	168	160	157	149	146	138	3.650
15	167	156	157	146	147	136	137	127	4.190
16	157	143	147	134	138	125	128	116	4.767
17	148	131	139	123	130	115	121	106	5.381
18	139	121	131	114	122	106	114	98	6.033
19	132	112	124	105	116	98	108	91	6.722
20	126	103	118	97	110	91	103	84	7.448
21	120	96	112	90	105	84	98	78	8.212
22	114	89	107	83	100	78	93	73	9.012
23	109	83	103	78	96	73	89	67	9.850
24	105	77	98	73	92	67	85	63	10.726
25	100	72	94	68	88	63	82	59	11.638
26	97	68	91	63	85	59	79	55	12.588
27	93	63	87	59	82	55	76	51	13.574
28	90	59	84	56	79	52	73	48	14.599
29	87	56	81	52	76	48	71	45	15.660
30	84	52	79	49	73	46	68	42	16.759
31	81		76		71		66		17.894
32	78		74		69		64		19.068
33	76		71		67		62		20.278
34	74		69		65		60		21.526
35	72		67		63		59		22.810
36	70		65		61		57		24.132
37	68		64		60		55		25.492
38	66		62		58		54		26.888
39	64		60		57		53		28.322
40	63		59		55		51		29.793
41	61		58						31.301

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 211 21"x8"										
	76 lbs.		70 lbs.		64 lbs.		58 lbs.		55 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	241	241	221	221	201	201	181	181	180	180	
8	236	236	218	218	199	199	180	180	168	168	1.192
9	210	210	194	194	177	177	160	160	149	149	1.508
10	189	189	174	174	159	159	144	144	134	134	1.862
11	172	169	158	156	145	142	131	128	122	119	2.253
12	158	151	145	139	133	127	120	115	112	107	2.681
13	145	136	134	126	123	115	111	104	103	96	3.147
14	135	124	124	114	114	104	103	94	96	87	3.650
15	126	112	116	103	106	94	96	85	89	79	4.190
16	118	102	109	94	100	86	90	78	84	72	4.767
17	111	94	103	86	94	79	85	71	79	66	5.381
18	105	86	97	79	89	72	80	65	74	61	6.033
19	100	79	92	73	84	67	76	60	71	56	6.722
20	95	73	87	67	80	61	72	55	67	51	7.448
21	90	68	83	62	76	57	69	51	64	47	8.212
22	86	63	79	57	72	52	66	47	61	44	9.012
23	82	58	76	53	69	49	63	44	58	41	9.850
24	79	54	73	49	66	45	60	41	56	38	10.726
25	76	50	70	46	64	42	58	38	54	35	11.638
26	73	46	67	43	61	39	56	35	52	33	12.588
27	70		65		59		53		50		13.574
28	68		62		57		52		48		14.599
29	65		60		55		50		46		15.660
30	63		58		53		48		45		16.759
31	61		56		51		47		43		17.894
32	59		54		50		45		42		19.068
33	57		53		48		44		41		20.278
34	56		51		47		42		39		21.526
35	54		50		46		41		38		22.810
36	53		48		44		40		37		24.132
37	51		47		43		39		36		25.492
38	50		46		42		38		35		26.888
39	48		45		41		37		34		28.322
40	47		44		40		36		33		29.793

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 124C 12"x12"								
	102 lbs.		95 lbs.		88 lbs.		82 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	271.6	271.6							
6	240.4	240.4	222.0	222.0					0.670
7	206.1	206.1	199.0	199.0	172.8	172.8			0.912
8	180.3	180.3	174.2	174.2	168.0	168.0			1.192
9	160.3	160.3	154.8	154.8	149.3	149.3			1.508
10	144.2	144.2	139.3	139.3	134.4	134.4	130.2	130.2	1.862
11	131.1	131.1	126.7	126.7	122.2	122.2	118.4	118.4	2.253
12	120.2	120.2	116.1	116.1	112.0	112.0	108.5	108.5	2.681
13	111.0	111.0	107.2	107.2	103.4	103.4	100.2	100.2	3.147
14	103.0	103.0	99.5	99.5	96.0	96.0	93.0	93.0	3.650
15	96.2	96.2	92.9	92.9	89.6	89.6	86.8	86.8	4.190
16	90.2	89.7	87.1	86.4	84.0	83.0	81.4	80.2	4.767
17	84.8	83.3	82.0	80.1	79.1	77.0	76.6	74.4	5.381
18	80.1	77.5	77.4	74.6	74.7	71.7	72.3	69.2	6.033
19	75.9	72.3	73.3	69.6	70.7	66.8	68.5	64.5	6.722
20	72.1	67.6	69.7	65.0	67.2	62.5	65.1	60.3	7.448
21	68.7	63.3	66.3	60.9	64.0	58.5	62.0	56.4	8.212
22	65.6		63.3		61.1		59.2		9.012
23	62.7		60.6		58.4		56.6		9.850
24	60.1		58.1		56.0		54.3		10.726

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 18,000 Pounds per Square Inch**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection		
	CB 124B 12"x12"						CB 123B 12"x9"								
	76 lbs.		70 lbs.		65 lbs.		66 lbs.		60 lbs.		55 lbs.				
	Laterally														
Fixed		Free		Fixed		Free		Fixed		Free		Fixed		Free	
	193.0	193.0													
6	186.8	186.8													0.670
7	160.1	160.1	150.6	150.6				131.8	131.8	119.0	119.0	108.0	108.0		0.912
8	140.1	140.1	134.7	134.7				128.7	128.7	116.9	116.9	107.1	107.1		1.192
9	124.5	124.5	119.7	119.7	115.2	115.2		114.4	114.4	103.9	103.9	95.2	95.2		1.508
10	112.1	112.1	107.8	107.8	104.3	104.3		103.0	103.0	93.5	93.5	85.7	85.7		1.862
11	101.9	101.9	98.0	98.0	94.8	94.8		93.6	93.6	85.0	85.0	77.9	77.9		2.253
12	93.4	93.4	89.8	89.8	86.9	86.9		85.8	84.8	77.9	76.7	71.4	70.3		2.681
13	86.2	86.2	82.9	82.9	80.2	80.2		79.2	76.6	71.9	69.6	65.9	63.7		3.147
14	80.1	80.1	77.0	77.0	74.5	74.5		73.5	69.8	66.8	63.4	61.2	57.8		3.650
15	74.7	74.7	71.8	71.8	69.5	69.5		68.6	63.8	62.3	57.7	57.1	52.9		4.190
16	70.1	69.2	67.4	66.6	65.2	64.2		64.4	58.3	58.4	53.0	53.6	48.5		4.767
17	65.9	64.2	63.4	61.8	61.3	59.6		60.6	53.7	55.0	48.8	50.4	44.5		5.381
18	62.3	60.0	59.9	57.5	57.9	55.4		57.2	49.6	51.9	44.8	47.6	41.1		6.033
19	59.0	56.0	56.7	53.6	54.9	51.7		54.2	45.7	49.2	41.5	45.1	38.0		6.722
20	56.0	52.3	53.9	50.1	52.1	48.3		51.5	42.3	46.7	38.4	42.8	35.1		7.448
21	53.4	49.0	51.3	46.9	49.7	45.2		49.0	39.3	44.5	35.5	40.8	32.6		8.212
22	50.9		49.0		47.4			46.8		42.5		38.9			9.012
23	48.7		46.9		45.3			44.8		40.6		37.3			9.850
24	46.7		44.9		43.5			42.9		39.0		35.7			10.726

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 18,000 Pounds per Square Inch

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 103A 10"x10"								
	64 lbs.		59 lbs.		54 lbs.		49 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	189.8	189.8							
4	185.4	185.4	154.6	154.6					0.298
5	148.3	148.3	142.3	142.3	119.3	119.3			0.466
6	123.6	123.6	118.6	118.6	113.8	113.8			0.670
7	105.9	105.9	101.7	101.7	97.5	97.5			0.912
8	92.7	92.7	89.0	89.0	85.4	85.4	84.0	84.0	1.192
9	82.4	82.4	79.1	79.1	75.9	75.9	72.5	72.5	1.508
10	74.2	74.2	71.2	71.2	68.3	68.3	65.3	65.3	1.862
11	67.4	67.4	64.7	64.7	62.1	62.1	59.3	59.3	2.253
12	61.8	61.8	59.3	59.3	56.9	56.9	54.4	54.4	2.681
13	57.0	57.0	54.7	54.5	52.5	52.3	50.2	49.8	3.147
14	53.0	52.2	50.8	49.9	48.8	47.7	46.6	45.4	3.650
15	49.4	47.8	47.4	45.7	45.5	43.7	43.5	41.6	4.190
16	46.4	44.0	44.5	42.0	42.7	40.2	40.8	38.2	4.767
17	43.6	40.7	41.9	38.9	40.2	37.2	38.4	35.3	5.381
18	41.2		39.5		37.9		36.3		6.033
19	39.0		37.5		35.9		34.4		6.722
20	37.1		35.6		34.1		32.6		7.448
21	35.3		33.9		32.5		31.1		8.212
22	33.7		32.3		31.0		29.7		9.012
23	32.2		30.9		29.7		28.4		9.850
24	30.9		29.7		28.5		27.2		10.726

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## STANDARD MILL SECTIONS

## ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 18,000 Pounds per Square Inch

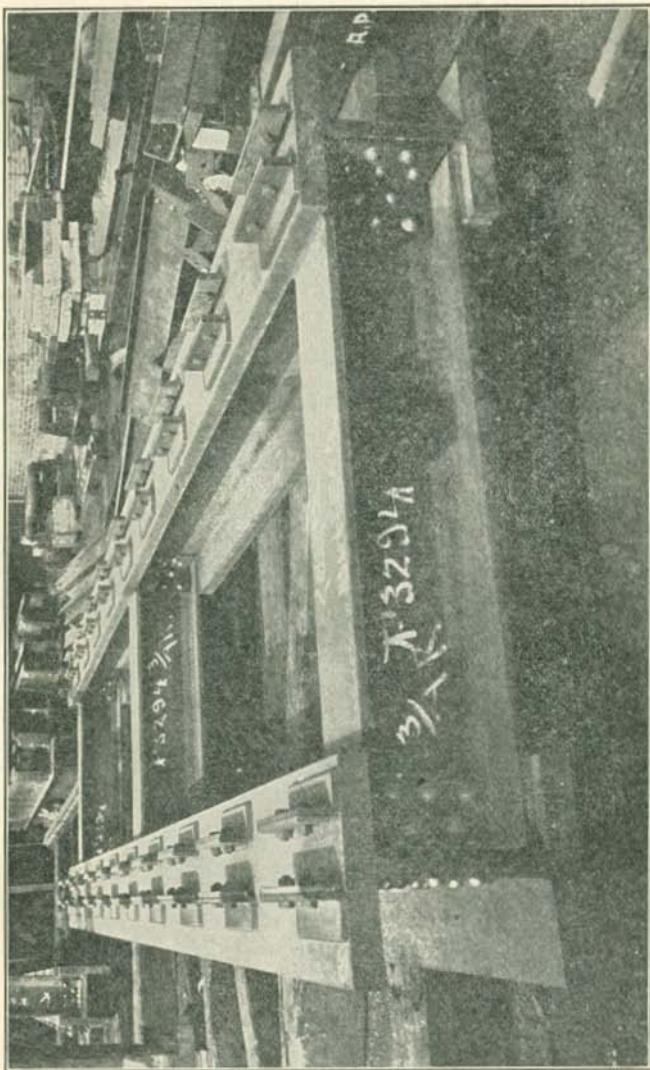
Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	B 40 9" x 5 1/4"				B 39 8" x 5"				
	25 lbs.		20.5 lbs.		21 lbs.		17.5 lbs.		
	Laterally				Laterally				
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
3	82.1	82.1			69.1	69.1			0.168
4	63.7	63.7	50.5	50.5	63.4	63.4	44.4	44.4	0.298
5	50.9	50.9	46.1	46.1	47.6	47.6	42.9	42.9	0.466
6	42.4	42.4	38.4	38.4	38.1	38.1	34.3	34.3	0.670
7	36.4	36.1	32.9	32.4	31.7	31.7	28.6	28.6	0.912
8	31.8	30.6	28.8	27.4	27.2	26.6	24.5	23.9	1.192
9	28.3	26.2	25.6	23.4	23.8	22.5	21.5	20.1	1.508
10	25.5	22.7	23.0	20.2	21.1	19.2	19.1	17.1	1.862
11	23.1	19.8	20.9	17.6	19.0	16.6	17.2	14.8	2.253
12	21.2	17.4	19.2	15.5	17.3	14.4	15.6	12.8	2.681
13	19.6	15.3	17.7	13.7	15.9	12.6	14.3	11.2	3.147
14	18.2	13.6	16.5	12.1	14.6	11.1	13.2	9.9	3.650
15	17.0	12.1	15.4	10.7	13.6	9.8	12.3	8.7	4.190
16	15.9	10.8	14.4	9.6	12.7		11.4		4.767
17	15.0		13.6		11.9		10.7		5.381
18	14.1		12.8		11.2		10.1		6.033
19	13.4		12.1						6.722

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.





CARNEGIE BEAM SECTIONS ADAPTED TO ASH PIT CONSTRUCTION

## CARNEGIE BEAM SECTIONS—Continued

## MAXIMUM BENDING MOMENTS AND WEB RESISTANCES

Bending Stress 16,000 Pounds—Shearing Stress 10,000 Pounds

Section Index and Nominal Depth	Depth of Beam	Weight per Foot	Web Thickness	Maximum Bending Moment	Value for End Reaction V				End Reaction $a=3\frac{1}{2}'$
					Web Shearing		Web Buckling		
					End Reaction	Span Limit	Unit Stress	End Bearing	
					d		t	M max.	
Inches	Pounds	Inches	Foot Pounds	Pounds	Feet	Pounds per Sq. In.	Inches	Pounds	
CB 362 36"	36.851	300	.958	1470261	353030	16.66	12345	20.64	150354
	36.550	275	.890	1342467	325300	16.51	11895	21.59	133797
	36.243	250	.824	1213975	298640	16.26	11391	22.76	117897
	36.000	230	.769	1112064	276840	16.07	10901	24.02	104788
CB 361 36"	36.645	192	.740	888417	271170	13.11	10433	25.96	97748
	36.395	175	.686	804417	249670	12.89	9822	27.96	84888
	36.183	160	.635	732072	229760	12.75	9142	30.53	72834
	36.000	147	.590	669663	212400	12.61	8444	33.63	62275
CB 332 33"	33.786	260	.870	1186901	293940	16.15	12282	19.06	127654
	33.546	240	.810	1093084	271720	16.09	11835	19.96	113955
	33.272	220	.766	992664	254860	15.58	11486	20.65	103974
	33.000	200	.720	892900	237600	15.03	11071	21.56	93659
CB 331 33"	33.530	167	.719	702741	241080	11.66	10932	22.29	93404
	33.342	152	.655	639711	218390	11.72	10194	24.37	79027
	33.164	138	.596	580789	197660	11.75	9374	27.09	65872
	33.000	125	.540	526409	178200	11.82	8428	30.91	53474
CB 301 30"	30.742	165	.755	635600	232100	10.95	11956	18.02	100970
	30.538	151	.692	581850	211320	11.01	11365	19.24	87570
	30.344	138	.634	531600	192380	11.05	10720	20.72	75340
	30.162	126	.581	485050	175240	11.07	10019	22.56	64270
	30.000	115	.530	443200	159000	11.15	9208	25.08	53680
CB 271 27"	27.742	137	.688	478250	190860	10.02	12024	16.13	86330
	27.536	124	.624	433050	171820	10.08	11366	17.35	73640
	27.340	112	.566	390950	154740	10.11	10643	18.85	62260
	27.166	101	.510	352950	138550	10.19	9785	20.97	51360
	27.000	91	.461	317750	124470	10.21	8868	23.70	41900
	25.820	85	.461	288275	123640	9.33	8935	23.31	42036

CARNEGIE BEAM SECTIONS—Continued

MAXIMUM BENDING MOMENTS AND WEB RESISTANCES

Bending Stress 16,000 Pounds—Shearing Stress 10,000 Pounds

Section Index and Nominal Depth	Depth of Beam d	Weight per Foot	Web Thickness t	Maximum Bending Moment M max.	Value for End Reaction V				End Reaction a=3½"
					Web Shearing		Web Buckling		
					End Reaction	Span Limit	Unit Stress	End Bearing	
					V max.	L min.	fb	a min.	
Inches	Pounds	Inches	Foot Pounds	Pounds	Feet	Pounds per Sq. In.	Inches	Pounds	
CB 213 21"	21.492	136	.606	411159	130240	12.63	12864	11.33	69173
	21.372	128	.570	387219	121820	12.71	12513	11.74	63074
	21.248	120	.535	362800	113680	12.77	12129	12.21	57180
	21.126	112	.499	338800	105420	12.86	11676	12.81	51160
	21.000	104	.465	314250	97650	12.87	11187	13.52	45520
CB 212 21"	21.358	98	.535	278992	114270	9.77	12094	12.32	57195
	21.240	92	.502	262000	106630	9.83	11680	12.87	51660
	21.120	86	.470	244800	99260	9.86	11226	13.53	46330
	21.000	80	.438	227850	91980	9.91	10705	14.37	41030
CB 211 21"	21.370	76	.469	210136	100230	8.39	11117	13.88	46107
	21.248	70	.433	193600	92000	8.42	10511	14.90	40100
	21.126	64	.396	177200	83660	8.47	9771	16.34	33980
	21.000	58	.360	160400	75600	8.49	8908	18.32	28060
	20.890	55	.360	148932	75200	7.92	8961	18.09	28141
CB 124C 12"	12.000	102	.943	160250	113160	5.66	15000	5.00	91940
	12.000	95	.771	154800	92520	6.69	15000	5.00	75170
	12.000	88	.600	149350	72000	8.30	15000	5.00	58500
	12.000	82	.453	144650	54360	10.65	14417	5.32	42450
CB 124B 12"	12.000	76	.670	124550	80400	6.20	15000	5.00	65320
	12.000	70	.523	119750	62760	7.63	15000	5.00	50990
	12.000	65	.400	115850	48000	9.66	13810	5.69	35910
CB 123B 12"	12.260	66	.448	114400	54920	8.33	14266	5.53	41960
	12.118	60	.409	103850	49560	8.38	13874	5.71	37050
	12.000	55	.375	95200	45000	8.46	13464	5.91	32820
CB 103A 10"	10.000	64	.791	82400	79100	4.17	15000	4.17	71190
	10.000	59	.644	79050	64400	4.91	15000	4.17	57960
	10.000	54	.497	75850	49700	6.11	15000	4.17	44730
	10.000	49	.350	72550	35000	8.29	14057	4.61	29520

STANDARD MILL SECTIONS

B 40 9"	9.000	25.0	.380	28250	34200	3.31	14903	3.79	32560
	9.000	20.5	.234	25600	21060	4.86	12346	5.04	16610
B 39 8"	8.000	21.0	.360	21200	28800	2.94	15000	3.33	29700
	8.000	17.5	.231	19050	18480	4.13	13009	4.15	16530

**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 16,000 Pounds per Square Inch**  
**City of New York Code**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 302 36"x16"								
	300 lbs.		275 lbs.		250 lbs.		230 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
706	706	651	651	597	597	554	554		
17	692	692	632	632	571	571	523	523	4.783
18	653	653	597	597	540	540	494	494	5.363
19	619	619	565	565	511	511	468	468	5.975
20	588	588	537	537	486	486	445	445	6.621
21	560	560	511	511	462	462	424	424	7.299
22	535	535	488	488	441	441	404	404	8.011
23	511	511	467	467	422	422	387	387	8.756
24	490	490	447	447	405	405	371	371	9.534
25	470	470	430	430	388	388	356	356	10.345
26	452	452	413	413	374	374	342	342	11.189
27	436	436	398	398	360	358	329	328	12.066
28	420	415	384	379	347	341	318	313	12.977
29	406	396	370	362	335	326	307	298	13.920
30	392	378	358	347	324	311	297	285	14.897
31	379	362	346	330	313	297	287	272	15.906
32	368	346	336	316	304	285	278	261	16.949
33	356	331	325	303	294	272	270	250	18.025
34	346	318	316	290	286	261	262	239	19.134
35	336	305	307	278	277	250	254	229	20.276
36	327	292	298	267	270	240	247	220	21.451
37	318	281	290	256	262	231	240	211	22.659
38	310	270	283	246	256	222	234	203	23.901
39	302	259	275	237	249	213	228	195	25.175
40	294	249	268	228	243	205	222	188	26.483
42	280	231	256	211	231	190	212	174	29.197
44	267	215	244	195	221	176	202	161	32.044
46	256	200	233	181	211	163	193	150	35.023
48	245	186	224	169	202	152	185	139	38.135
50	235	173	215	157	194	142	178	129	41.379
52	226	161	207	146	187	132	171	120	44.756
54	218		199		180		165		48.265
56	210		192		173		159		51.906
58	203		185		167		153		55.680
60	196		179		162		148		59.586
62	190		173		157		143		63.625
64	184		168		152		139		67.796
66	178		163		147		135		72.099
68	173		158		143		131		76.535
70	168		153		139		127		81.103
72	163		149		135		124		85.804
74	159		145		131		120		90.637
76	155		141		128		117		95.603
78	151		138		125		114		100.701

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 361 36"x12"								
	192 lbs.		175 lbs.		160 lbs.		147 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
			499	499	460	460	425	425	
13	542	542	495	495	451	451	412	412	2.797
14	508	508	460	460	418	418	383	383	3.244
15	474	474	429	429	390	390	357	357	3.724
16	444	444	402	402	366	366	335	335	4.237
17	418	418	379	379	345	345	315	315	4.783
18	395	395	358	358	325	325	298	298	5.363
19	374	374	339	339	308	308	282	282	5.975
20	355	355	322	322	293	293	268	268	6.621
21	338	334	306	303	279	275	255	251	7.299
22	323	314	293	285	266	258	243	236	8.011
23	309	296	280	268	255	243	233	222	8.756
24	296	279	268	252	244	229	223	209	9.534
25	284	263	257	238	234	216	214	198	10.345
26	273	249	248	225	225	204	206	187	11.189
27	263	235	238	213	217	193	198	177	12.066
28	254	223	230	202	209	183	191	167	12.977
29	245	212	222	192	202	174	185	159	13.920
30	237	201	215	182	195	165	179	151	14.897
31	229	192	208	173	189	156	173	143	15.906
32	222	182	201	164	183	149	167	136	16.949
33	215	173	195	156	177	141	162	129	18.025
34	209	165	189	149	172	135	158	123	19.134
35	203	157	184	141	167	129	153	117	20.276
36	197	150	179	135	163	123	149	112	21.451
37	192	143	174	128	158	117	145	106	22.659
38	187	136	169	122	154	111	141	101	23.901
39	182	130	165	117	150	106	137	97	25.175
40	178	124	161	111	146	101	134	92	26.483
42	169		153		139		128		29.197
44	162		146		133		122		32.044
46	155		140		127		116		35.023
48	148		134		122		112		38.135
50	142		129		117		107		41.379
52	137		124		113		103		44.756
54	132		119		108		99		48.265
56	127		115		105		96		51.906
58	123		111		101		92		55.680
60	118		107		98		89		59.586
62	115		104		94		86		63.625
64	111		101		92		84		67.796
66	108		98		89		81		72.099
68	105		95		86		79		76.535
70	102		92		84		77		81.103
72	99		89		81		74		85.804
74	96		87		79		72		90.637
76	94		85		77		70		95.603

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 332 33"x16"								
	260 lbs.		240 lbs.		220 lbs.		200 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
16	588	588	543	543	510	510	475	475	4.237
17	559	559	514	514	467	467	420	420	4.783
18	528	528	486	486	441	441	397	397	5.363
19	500	500	460	460	418	418	376	376	5.975
20	475	475	437	437	397	397	357	357	6.621
21	452	452	416	416	378	378	340	340	7.299
22	432	432	397	397	361	361	325	325	8.011
23	413	413	380	380	345	345	311	311	8.756
24	396	396	364	364	331	331	298	298	9.534
25	380	380	350	350	318	318	286	286	10.345
26	365	365	336	336	305	305	275	275	11.189
27	352	352	324	323	294	293	265	264	12.066
28	339	335	312	307	284	279	255	251	12.977
29	327	320	302	293	274	266	246	240	13.920
30	317	305	291	281	265	254	238	229	14.897
31	306	292	282	269	256	243	230	219	15.906
32	297	279	273	257	248	233	223	209	16.949
33	288	268	265	246	241	223	216	200	18.025
34	279	256	257	236	234	214	210	192	19.134
35	271	246	250	226	227	205	204	184	20.276
36	264	236	243	217	221	196	198	177	21.451
37	257	227	236	209	215	189	193	170	22.659
38	250	218	230	200	209	181	188	163	23.901
39	243	209	224	193	204	174	183	157	25.175
40	237	201	219	185	199	168	179	151	26.483
42	226	186	208	172	189	155	170	140	29.197
44	216	173	199	159	180	144	162	129	32.044
46	206	160	190	148	173	134	155	120	35.023
48	198	149	182	137	165	124	149	112	38.135
50	190	139	175	128	159	115	143	104	41.379
52	183	129	168		153		137		44.756
54	176		162		147		132		48.265
56	170		156		142		128		51.906
58	164		151		137		123		55.680
60	158		146		132		119		59.586
62	153		141		128		115		63.625
64	148		137		124		112		67.796
66	144		132		120		108		72.099
68	140		129		117		105		76.535
70	136		125		113		102		81.103
72	132								85.804

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 331 33"x12"								
	167 lbs.		152 lbs.		138 lbs.		125 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	482	482	437	437	395	395	356	356	
12	469	469	426	426	387	387	351	351	2.383
13	432	432	394	394	357	357	324	324	2.797
14	402	402	366	366	332	332	301	301	3.244
15	375	375	341	341	310	310	281	281	3.724
16	351	351	320	320	290	290	263	263	4.237
17	331	331	301	301	273	273	248	248	4.783
18	312	312	284	284	258	258	234	234	5.363
19	296	296	269	269	245	245	222	222	5.975
20	281	281	256	256	232	232	211	211	6.621
21	268	265	244	241	221	218	201	197	7.299
22	256	249	233	226	211	205	191	185	8.011
23	244	234	223	213	202	193	183	175	8.756
24	234	221	213	201	194	182	175	165	9.534
25	225	208	205	190	186	171	168	155	10.345
26	216	198	197	179	179	162	162	147	11.189
27	208	187	190	170	172	154	156	139	12.066
28	201	177	183	161	166	146	150	132	12.977
29	194	168	176	152	160	138	145	125	13.920
30	187	160	171	145	155	131	140	118	14.897
31	181	152	165	137	150	125	136	112	15.906
32	176	144	160	131	145	119	132	107	16.949
33	170	137	155	124	141	113	128	102	18.025
34	165	130	151	118	137	107	124	97	19.134
35	161	124	146	113	133	102	120	92	20.276
36	156	118	142	107	129	97	117	88	21.451
37	152	113	138	102	126	93	114	84	22.659
38	148	108	135	97	122	88	111	80	23.961
39	144	102	131	93	119	84	108	76	25.175
40	141	98	128	89	116	80	105	72	26.483
42	134		122		111		100		29.197
44	128		116		106		96		32.044
46	122		111		101		92		35.023
48	117		107		97		88		38.135
50	112		102		93		84		41.379
52	108		98		89		81		44.756
54	104		95		86		78		48.265
56	100		91		83		75		51.906
58	97		88		80		73		55.680
60	94		85		77		70		59.586
62	91		83		75		68		63.625
64	88		80		73		66		67.796
66	85		78		70		64		72.099
68	83		75		68		62		76.535
70	80		73		66		60		81.103

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 16,000 Pounds per Square Inch**  
**City of New York Code**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 301 30" x 10½"										
	165 lbs.		151 lbs.		138 lbs.		126 lbs.		115 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
11	464	464	423	423	385	385	350	350	318	318	2.003
12	424	424	388	388	354	354	323	323	295	295	2.383
13	391	391	358	358	327	327	299	299	273	273	2.797
14	363	363	332	332	304	304	277	277	253	253	3.244
15	339	339	310	310	284	284	259	259	236	236	3.724
16	318	318	291	291	266	266	243	243	222	222	4.237
17	299	299	274	274	250	250	228	228	209	209	4.783
18	282	281	259	258	236	235	216	214	197	195	5.363
19	268	262	245	239	224	219	204	199	187	181	5.975
20	254	244	233	224	213	203	194	186	177	170	6.621
21	242	229	222	209	203	191	185	173	169	158	7.299
22	231	215	212	196	193	178	176	163	161	148	8.011
23	221	201	202	183	185	168	169	152	154	139	8.756
24	212	190	194	173	177	157	162	143	148	130	9.534
25	203	178	186	162	170	148	155	135	142	123	10.345
26	196	168	179	153	164	139	149	127	136	116	11.189
27	188	158	172	144	158	132	144	120	131	109	12.066
28	182	150	166	136	152	124	139	113	127	103	12.977
29	175	141	161	129	147	117	134	107	122	97	13.920
30	169	134	155	122	142	111	129	101	118	92	14.897
31	164	126	150	115	137	105	125	95	114	87	15.906
32	159	120	145	109	133	99	121	90	111	82	16.949
33	154	113	141	103	129	94	118	85	107	78	18.025
34	150	107	137	98	125	89	114	81	104	74	19.134
35	145	102	133	92	122	84	111	77	101	70	20.276
36	141		129		118		108		98		21.451
37	137		126		115		105		96		22.659
38	134		122		112		102		93		23.901
39	130		119		109		100		91		25.175
40	127		116		106		97		89		26.483
41	124		114		104		95		86		27.823
42	121		111		101		92		84		29.197
43	118		108		99		90		82		30.604
44	116		106		97		88		81		32.044
45	113		103		95		86		79		33.517
46	111		101		92		84		77		35.023
47	108		99		90		83		75		36.563
48	106		97		89		81		74		38.135
49	104		95		87		79		72		39.741
50	102		93		85		78		71		41.379
51	100		91		83		76		70		43.051
52	98		90		82		75		68		44.756
53	96		88		80		73		67		46.494
54	94		86		79		72		66		48.265
55	92		85		77		71		64		50.069
56	91		83		76		69		63		51.906
57	89		82		75		68		62		53.777
58	88		80		73		67		61		55.680
59	86		79		72		66		60		57.617
60	85		78		71		65		59		59.586
61	83		76		70		64		58		61.589
62	82		75		69		63		57		63.625

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection
	CB 271 27"x9 $\frac{3}{4}$ "												
	137 lbs.		124 lbs.		112 lbs.		101 lbs.		91 lbs.		85 lbs.		
	Laterally												
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
											247	247	
10	382	382	344	344	309	309	277	277	249	249	231	231	2.003
11	348	348	315	315	284	284	257	257	231	231	210	210	2.383
12	319	319	289	289	261	261	235	235	212	212	192	192	2.797
13	294	294	267	267	241	241	217	217	196	196	177	177	3.244
14	273	273	247	247	223	223	202	202	182	182	165	165	3.724
15	255	255	231	231	208	208	188	188	169	169	154	154	4.237
16	239	239	217	217	195	195	176	176	159	159	144	144	4.783
17	225	223	204	202	184	182	166	164	150	147	136	134	5.363
18	213	207	192	187	174	168	157	152	141	136	128	124	5.975
19	201	193	182	174	165	156	149	141	134	126	121	115	6.621
20	191	179	173	162	156	146	141	131	127	118	115	107	7.299
21	182	167	165	151	149	136	134	122	121	110	110	100	8.011
22	174	156	157	141	142	127	128	114	116	103	105	93	8.756
23	166	146	151	132	136	119	123	107	111	96	100	87	9.534
24	159	138	144	124	130	111	118	100	106	90	96	82	10.345
25	153	129	139	116	125	105	113	94	102	85	92	77	11.189
26	147	121	133	109	120	98	109	89	98	79	89	72	12.066
27	142	114	128	103	116	92	105	83	94	75	85	68	12.977
28	137	107	124	97	112	87	101	78	91	70	82	64	13.920
29	132	101	119	91	108	82	97	74	88	66	80	60	14.897
30	128	96	115	86	104	77	94	69	85	62	77	56	15.906
31	123	91	112	81	101	73	91	65	82	59	74	53	16.949
32	120	85	108	77	98	69	88	62	79	55	72	50	18.025
33	116	80	105	72	95		86		77		70		19.134
34	113		102		92		83		75		68		20.276
35	109		99		89		81		73		66		21.451
36	106		96		87		78		71		64		22.659
37	103		94		85		76		69		62		23.901
38	101		91		82		74		67		61		25.175
39	98		89		80		72		65		59		26.483
40	96		87		78		71		64		58		27.823
41	93		85		76		69		62		56		29.197
42	91		82		74		67		61		55		30.604
43	89		81		73		66		59		54		32.044
44	87		79		71		64		58		52		33.517
45	85		77		69		63		56		51		35.023
46	83		75		68		61		55		50		36.563
47	81		74		67		60		54		49		38.135
48	80		72		65		59		53		48		39.741
49	78		71		64		58		52		47		41.379
50	77		69		63		56		51		46		43.051
51	75		68		61		55		50		45		44.756
52	74		67		60		54		49		44		46.494
53	72		65		59		53		48		44		48.265
54	71		64		58		52		47		43		50.069
55	70		63		57		51		46		42		51.906
56	68		62		56		50		45		41		53.777
57	67		61		55		49		45		40		

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 213 21"x13"										
	136 lbs.		128 lbs.		120 lbs.		112 lbs.		104 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	260	260	244	244	227	227	211	211	195	195	
13	253	253	238	238	223	223	208	208	193	193	2.797
14	235	235	221	221	207	207	194	194	180	180	3.244
15	219	219	207	207	194	194	181	181	168	168	3.724
16	206	206	194	194	181	181	169	169	157	157	4.237
17	194	194	182	182	171	171	159	159	148	148	4.783
18	183	183	172	172	161	161	151	151	140	140	5.363
19	173	173	163	163	153	153	143	143	132	132	5.975
20	164	164	155	155	145	145	136	136	126	126	6.621
21	157	157	148	148	138	138	129	129	120	120	7.299
22	150	150	141	140	132	131	123	123	114	114	8.011
23	143	141	135	133	126	124	118	116	109	107	8.756
24	137	133	129	125	121	117	113	109	105	101	9.534
25	132	126	124	118	116	111	108	103	101	96	10.345
26	127	119	119	112	112	105	104	98	97	91	11.189
27	122	113	115	106	108	100	100	93	93	86	12.066
28	117	107	111	101	104	94	97	88	90	82	12.977
29	113	102	107	96	100	90	93	84	87	78	13.920
30	110	97	103	91	97	85	90	80	84	74	14.897
31	106	92	100	87	94	81	87	76	81	70	15.906
32	103	88	97	83	91	77	85	72	79	67	16.949
33	100	84	94	79	88	74	82	69	76	64	18.025
34	97	80	91	75	85	70	80	66	74	61	19.134
35	94	76	89	72	83	67	77	63	72	58	20.276
36	91	73	86	69	81	64	75	60	70	55	21.451
37	89	70	84	65	78	61	73	57	68	53	22.659
38	87	67	82	63	76	58	71	55	66	51	23.901
39	84	64	79	60	74	56	69	52	64	48	25.175
40	82	61	77	57	73	54	68	50	63	46	26.483
41	80	58	76	55	71	51	66	48	61	44	27.823
42	78	56	74	52	69	49	65	46	60	42	29.197
43	77	53	72	50	68		63		58		30.604
44	75		70		66		62		57		32.044
45	73		69		65		60		56		33.517

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 212 21"x 9"								
	98 lbs.		92 lbs.		86 lbs.		80 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	229	229	213	213	199	199	184	184	
10	223	223	210	210	196	196	182	182	1.655
11	203	203	191	191	178	178	166	166	2.003
12	186	186	175	175	163	163	152	152	2.383
13	172	172	161	161	151	151	140	140	2.797
14	159	159	150	150	140	140	130	130	3.244
15	149	149	140	140	131	131	122	122	3.724
16	139	137	131	128	122	120	114	112	4.237
17	131	126	123	118	115	111	107	103	4.783
18	124	117	116	110	109	102	101	95	5.363
19	117	108	110	101	103	95	96	88	5.975
20	112	100	105	94	98	88	91	82	6.621
21	106	93	100	88	93	82	87	76	7.299
22	101	87	95	81	89	76	83	71	8.011
23	97	81	91	76	85	71	79	66	8.756
24	93	76	87	71	82	66	76	62	9.534
25	89	71	84	67	78	62	73	58	10.345
26	86	67	81	62	75	58	70	54	11.189
27	83	63	78	59	73	55	68	51	12.066
28	80	59	75	55	70	51	65	48	12.977
29	77	55	72	51	68	48	63	44	13.920
30	74	52	70	48	65	45	61	42	14.897
31	72		68		63		59		15.906
32	70		65		61		57		16.949
33	68		64		59		55		18.025
34	66		62		58		54		19.134
35	64		60		56		52		20.276
36	62		58		54		51		21.451
37	60		57		53		49		22.659
38	59		55		52		48		23.901
39	57		54		50		47		25.175
40	56		52		49		46		26.483
41	54		51		48		44		27.823
42	53		50		47		43		29.197
43	52		49		46		42		30.604
44	51		48		45		41		32.044
45	50		47		44		41		33.517

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 211 21"x8"										
	76 lbs.		70 lbs.		64 lbs.		58 lbs.		55 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
8	200	200	184	184	167	167	151	151	149	149	1.059
9	187	187	172	172	157	157	143	143	132	132	1.341
10	168	168	155	155	142	142	128	128	119	119	1.655
11	153	153	141	141	129	129	117	117	108	108	2.003
12	140	140	129	129	118	118	107	107	99	99	2.383
13	129	129	119	119	109	109	99	99	92	92	2.797
14	120	119	111	109	101	100	92	90	85	84	3.244
15	112	108	103	100	94	91	86	82	79	76	3.724
16	105	99	97	91	89	83	80	75	74	70	4.237
17	99	91	91	84	83	76	75	69	70	64	4.783
18	93	84	86	77	79	70	71	63	66	59	5.363
19	88	77	82	71	75	65	68	59	63	54	5.975
20	84	72	77	66	71	60	64	54	60	50	6.621
21	80	66	74	61	67	56	61	50	57	47	7.299
22	76	61	70	56	64	52	58	46	54	43	8.011
23	73	57	67	52	62	48	56	43	52	40	8.756
24	70	53	65	49	59	45	53	40	50	37	9.534
25	67	49	62	45	57	41	51	37	48	35	10.345
26	65	46	60	42	55	39	49	35	46	32	11.189
27	62	43	57		52		48		44		12.066
28	60		55		51		46		43		12.977
29	58		53		49		44		41		13.920
30	56		52		47		43		40		14.897
31	54		50		46		41		38		15.906
32	53		48		44		40		37		16.949
33	51		47		43		39		36		18.025
34	49		46		42		38		35		19.134
35	48		44		40		37		34		20.276
36	47		43		39		36		33		21.451
37	45		42		38		35		32		22.659
38	44		41		37		34		31		23.901
39	43		40		36		33		31		25.175
40	42		39		35		32		30		26.483
41	41		38		35		31		29		27.823
42	40		37		34		31		28		29.197
43	39		36		33		30		28		30.604
44	38		35		32		29		27		32.044
45	37		34		31		28		26		33.517
46	36										

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 124C 12'' x 12''								
	102 lbs.		95 lbs.		88 lbs.		82 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	226.3	226.3							
6	213.7	213.7	185.0	185.0					0.596
7	183.2	183.2	176.9	176.9					0.811
8	160.3	160.3	154.8	154.8	144.0	144.0			1.059
9	142.5	142.5	137.6	137.6	132.7	132.7			1.341
10	128.2	128.2	123.8	123.8	119.5	119.5	108.7	108.7	1.655
11	116.6	116.6	112.6	112.6	108.6	108.6	105.2	105.2	2.003
12	106.8	106.8	103.2	103.2	99.6	99.6	96.4	96.4	2.383
13	98.6	98.6	95.3	95.3	91.9	91.9	89.0	89.0	2.797
14	91.6	91.6	88.5	88.5	85.3	85.3	82.7	82.7	3.244
15	85.5	85.5	82.6	82.6	79.6	79.6	77.2	77.2	3.724
16	80.1	80.1	77.4	77.4	74.7	74.7	72.3	72.3	4.237
17	75.4	75.4	72.8	72.8	70.3	70.3	68.1	68.1	4.783
18	71.2	71.2	68.8	68.8	66.4	66.4	64.3	64.3	5.363
19	67.5	67.5	65.2	65.2	62.9	62.9	60.9	60.9	5.975
20	64.1	64.1	61.9	61.9	59.7	59.7	57.9	57.9	6.621
21	61.1	60.8	59.0	58.5	56.9	56.2	55.1	54.3	7.299
22	58.3	57.1	56.3	55.0	54.3	52.8	52.6	51.0	8.011
23	55.7	54.0	53.8	51.7	51.9	49.7	50.3	48.0	8.756
24	53.4	50.9	51.6	48.8	49.8	46.9	48.2	45.2	9.534
25	51.3		49.5		47.8		46.3		10.345
26	49.3		47.6		45.9		44.5		11.189
27	47.5		45.9		44.2		42.9		12.066

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection
	CB 124B 12" x 12"						CB 123B 12" x 9"						
	76 lbs.		70 lbs.		65 lbs.		66 lbs.		60 lbs.		55 lbs.		
	Laterally						Laterally						
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
7	160.8 142.3	160.8 142.3											0.811
8	124.5 119.7	124.5 119.7	125.5 119.7	125.5 119.7									1.059
9	110.7 99.6	110.7 99.6	106.4 95.8	106.4 95.8	96.0 92.7	96.0 92.7	109.8 91.5	109.8 91.5	99.1 83.1	99.1 83.1	90.0 76.2	90.0 76.2	1.341
10	90.6 83.0	90.6 83.0	87.1 79.8	87.1 79.8	84.3 77.2	84.3 77.2	83.2 76.3	83.2 76.3	75.5 69.2	75.5 69.2	69.2 63.5	69.2 63.5	1.655
11	76.6 71.2	76.6 71.2	73.7 68.4	73.7 68.4	71.3 66.2	71.3 66.2	70.4 65.4	70.4 65.4	63.9 59.4	63.9 59.4	58.6 54.4	58.6 54.4	2.003
12	66.4 62.3	66.4 62.3	63.9 59.9	63.9 59.9	61.8 57.9	61.8 57.9	61.0 57.2	61.0 57.2	55.4 51.9	55.4 51.9	50.8 47.6	50.8 47.6	2.383
13	58.6 55.3	58.6 55.3	56.3 53.2	56.3 53.2	54.5 51.5	54.5 51.5	53.8 50.8	53.8 50.8	48.9 47.9	48.9 47.9	47.0 43.3	47.0 43.3	2.797
14	52.4 49.8	52.4 49.8	50.4 47.9	50.4 47.9	48.8 46.3	48.8 46.3	48.2 45.8	48.2 45.8	44.2 41.1	44.2 41.1	43.7 37.3	40.1 34.1	3.244
15	47.4 45.3	47.4 45.3	45.6 44.2	45.6 44.2	44.1 42.1	44.1 42.1	43.5 41.6	43.5 41.6	38.3 35.8	38.3 35.8	34.6 32.3	34.6 32.3	3.724
16	43.3 41.5	43.3 41.5	41.6 39.9	41.6 39.9	40.3 38.6	40.3 38.6	39.8 38.1	39.8 38.1	36.1 34.6	36.1 34.6	30.2 28.1	30.2 28.1	4.237
17	39.9 38.3		38.3 36.8		37.1 35.7		36.6 35.2		33.2 32.0		30.5 29.3		4.783
18	38.3 36.9		36.8 35.5		35.7 34.3		35.2 33.9		32.0 30.8		29.3 28.2		5.363
19													5.975
20													6.621
21													7.299
22													8.011
23													8.756
24													9.534
25													10.345
26													11.189
27													12.066

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 103A 10'' x 10''								
	64 lbs.		59 lbs.		54 lbs.		49 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
5	158.2	158.2	128.8	128.8					0.414
	131.8	131.8	126.5	126.5					
6	109.9	109.9	105.4	105.4	99.4	99.4			0.596
7	94.2	94.2	90.4	90.4	86.7	86.7			0.811
8	82.4	82.4	79.1	79.1	75.9	75.9	70.0	70.0	1.059
9	73.2	73.2	70.3	70.3	67.4	67.4	64.5	64.5	1.341
10	65.9	65.9	63.3	63.3	60.7	60.7	58.0	58.0	1.655
11	59.9	59.9	57.5	57.5	55.2	55.2	52.8	52.8	2.003
12	54.9	54.9	52.7	52.7	50.6	50.6	48.4	48.4	2.383
13	50.7	50.7	48.7	48.7	46.7	46.7	44.6	44.6	2.797
14	47.1	47.1	45.2	45.2	43.4	43.4	41.4	41.4	3.244
15	43.9	43.9	42.2	42.2	40.5	40.5	38.7	38.7	3.724
16	41.2	41.2	39.5	39.5	37.9	37.9	36.3	36.3	4.237
17	38.8	38.8	37.2	37.2	35.7	35.7	34.1	33.9	4.783
18	36.6	36.2	35.1	34.6	33.7	33.1	32.2	31.5	5.363
19	34.7	33.7	33.3	32.1	31.9	30.7	30.5	29.2	5.975
20	33.0	31.4	31.6	30.0	30.3	28.6	29.0	27.2	6.621
21	31.4		30.1		28.9		27.6		7.299
22	30.0		28.8		27.6		26.4		8.011
23	28.7		27.5		26.4		25.2		8.756

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



## STANDARD MILL SECTIONS

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

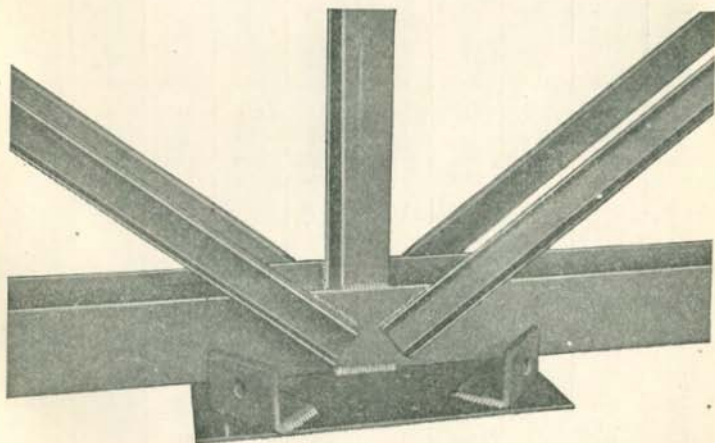
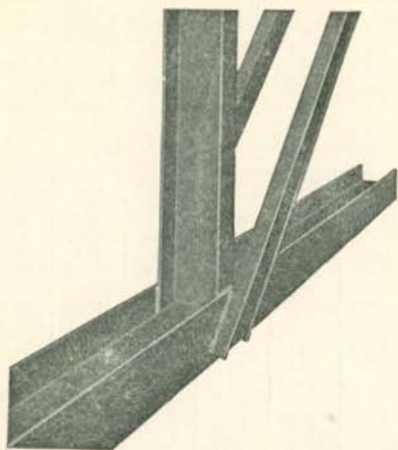
City of New York Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	B 40 9" x 5 1/4"				B 39 8" x 5"				
	25 lbs.		20.5 lbs.		21 lbs.		17.5 lbs.		
	Laterally				Laterally				
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
*3	68.4	68.4			57.6	57.6			0.149
4	56.6	56.6	42.1	42.1	56.4	56.4			0.265
5	45.3	45.3	41.0	41.0	42.3	42.3	37.0	37.0	0.414
6	37.7	37.7	34.1	34.1	33.8	33.8	30.5	30.5	0.596
7	32.3	32.3	29.3	29.3	28.2	28.2	25.4	25.4	0.811
8	28.3	28.3	25.6	25.6	24.2	24.2	21.8	21.8	1.059
9	25.1	25.1	22.8	22.5	21.1	21.1	19.1	19.1	1.341
10	22.6	21.8	20.5	19.5	18.8	18.4	16.9	16.5	1.655
11	20.6	19.1	18.6	17.1	16.9	16.0	15.3	14.3	2.003
12	18.9	16.9	17.1	15.1	15.4	14.0	13.9	12.5	2.383
13	17.4	15.0	15.8	13.4	14.1	12.3	12.7	10.9	2.797
14	16.2	13.3	14.6	11.9	13.0	10.9	11.7	9.7	3.244
15	15.1	11.9	13.7	10.6	12.1	9.6	10.9	8.6	3.724
16	14.1	10.7	12.8	9.5	11.3	8.6	10.2	7.6	4.237
17	13.3	9.6	12.0	8.5	10.6	7.7	9.5	6.8	4.783
18	12.6		11.4		60.0		9.0		5.363
19	11.9		10.8		9.4		8.5		5.975
20	11.3		10.2		8.1		8.0		6.621
21	10.8		9.8						7.299

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For Maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS IN WELDED TRUSSES

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 362 36"x16"								
	300 lbs.		275 lbs.		250 lbs.		230 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	706	706	651	651	597	597	554	554	
17	692	692	632	632	571	571	523	523	4.783
18	653	653	597	597	540	540	494	494	5.363
19	619	619	565	565	511	511	468	468	5.975
20	588	588	537	537	486	486	445	445	6.621
21	560	560	511	511	462	462	424	424	7.299
22	535	535	488	488	441	441	404	404	8.011
23	511	511	467	467	422	422	387	387	8.756
24	490	490	447	447	405	405	371	371	9.534
25	470	470	430	430	388	388	356	356	10.345
26	452	452	413	413	374	374	342	342	11.189
27	436	436	398	398	360	369	329	329	12.066
28	420	420	384	384	347	347	318	318	12.977
29	406	406	370	370	335	335	307	307	13.920
30	392	392	358	358	324	324	297	297	14.897
31	379	379	346	346	313	313	287	287	15.906
32	368	368	336	336	304	304	278	278	16.949
33	356	356	325	325	294	294	270	270	18.025
34	346	345	316	315	286	284	262	260	19.134
35	336	333	307	304	277	274	254	251	20.276
36	327	321	298	293	270	264	247	242	21.451
37	318	310	290	283	262	255	240	234	22.659
38	310	299	283	273	256	247	234	226	23.901
39	302	290	275	264	249	238	228	218	25.175
40	294	280	268	256	243	231	222	211	26.483
42	280	263	256	240	231	216	212	198	29.197
44	267	247	244	225	221	203	202	186	32.044
46	256	233	233	212	211	191	193	175	35.023
48	245	219	224	200	202	180	185	165	38.135
50	235	207	215	188	194	170	178	156	41.379
52	226	196	207	175	187		171		44.756
54	218		199		180		165		48.265
56	210		192		173		159		51.906
58	203		185		167		153		55.680
60	196		179		162		148		59.586
62	190		173		157		143		63.625
64	184		168		152		139		67.796
66	178		163		147		135		72.099
68	173		158		143		131		76.535
70	168		153		139		127		81.103
72	163		149		135		124		85.804
74	159		145		131		120		90.637
76	155		141		128		117		95.603
78	151		138		125		114		100.701

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 361 36"x12"								
	192 lbs.		175 lbs.		160 lbs.		147 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
			499	499	460	460	425	425	
13	542	542	495	495	451	451	412	412	2.797
14	508	508	460	460	418	418	383	383	3.244
15	474	474	429	429	390	390	357	357	3.724
16	444	444	402	402	366	366	335	335	4.237
17	418	418	379	379	345	345	315	315	4.783
18	395	395	358	358	325	325	298	298	5.363
19	374	374	339	339	308	308	282	282	5.975
20	355	355	322	322	293	293	268	268	6.621
21	338	338	306	306	279	279	255	255	7.299
22	323	323	293	293	266	266	243	243	8.011
23	309	309	280	280	255	255	233	233	8.756
24	296	296	268	268	244	244	223	223	9.534
25	284	284	257	257	234	234	214	214	10.345
26	273	271	248	246	225	223	206	204	11.189
27	263	259	238	234	217	213	198	194	12.066
28	254	247	230	224	209	203	191	186	12.977
29	245	236	222	214	202	194	185	177	13.920
30	237	226	215	204	195	185	179	170	14.897
31	229	217	208	196	189	178	173	162	15.906
32	222	208	201	188	183	170	167	156	16.949
33	215	199	195	180	177	163	162	149	18.025
34	209	191	189	173	172	157	158	143	19.134
35	203	184	184	166	167	151	153	138	20.276
36	197	177	179	160	163	145	149	132	21.451
37	192	170	174	153	158	140	145	127	22.659
38	187	164	169	148	154	134	141	123	23.901
39	182	158	165	142	150	130	137	118	25.175
40	178	152	161	137	146	125	134	114	26.483
42	169		153		139		128		29.197
44	162		146		133		122		32.044
46	155		140		127		116		35.023
48	148		134		122		112		38.135
50	142		129		117		107		41.379
52	137		124		113		103		44.756
54	132		119		108		99		48.265
56	127		115		105		96		51.906
58	123		111		101		92		55.680
60	118		107		98		89		59.586
62	115		104		94		86		63.625
64	111		101		92		84		67.796
66	108		98		89		81		72.099
68	105		95		86		79		76.535
70	102		92		84		77		81.103
72	99		89		81		74		85.804
74	96		87		79		72		90.637
76	94		85		77		70		95.603

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 16,000 Pounds per Square Inch**  
**City of Chicago Code**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 332 33"x16"								
	260 lbs.		240 lbs.		220 lbs.		200 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
16	588	588	543	543	510	510	475	475	4.237
17	559	559	514	514	496	496	446	446	4.783
18	528	528	486	486	441	441	397	397	5.363
19	500	500	460	460	418	418	376	376	5.975
20	475	475	437	437	397	397	357	357	6.621
21	452	452	416	416	378	378	340	340	7.299
22	432	432	397	397	361	361	325	325	8.011
23	413	413	380	380	345	345	311	311	8.756
24	396	396	364	364	331	331	298	298	9.534
25	380	380	350	350	318	318	286	286	10.345
26	365	365	336	336	305	305	275	275	11.189
27	352	352	324	324	294	294	265	265	12.066
28	339	339	312	312	284	284	255	255	12.977
29	327	327	302	302	274	274	246	246	13.920
30	317	317	291	291	265	265	238	238	14.897
31	306	306	282	282	256	256	230	230	15.906
32	297	297	273	273	248	248	223	223	16.949
33	288	288	265	265	241	241	216	216	18.025
34	279	279	257	257	234	232	210	209	19.134
35	271	269	250	247	227	224	204	202	20.276
36	264	259	243	239	221	216	198	194	21.451
37	257	250	236	230	215	209	193	188	22.659
38	250	242	230	223	209	202	188	181	23.901
39	243	234	224	215	204	195	183	175	25.175
40	237	226	219	208	199	189	179	170	26.483
42	226	212	208	195	189	177	170	159	29.197
44	216	199	199	183	180	166	162	149	32.044
46	206	187	190	173	173	156	155	141	35.023
48	198	177	182	163	165	147	149	132	38.135
50	190	167	175	153	159	139	143	125	41.379
52	183	157	168		153		137		44.756
54	176		162		147		132		48.265
56	170		156		142		128		51.906
58	164		151		137		123		55.680
60	158		146		132		119		59.586
62	153		141		128		115		63.625
64	148		137		124		112		67.796
66	144		132		120		108		72.099
68	140		129		117		105		76.535
70	136		125		113		102		81.103
72	132								85.804

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 331 33"x12"								
	167 lbs.		152 lbs.		138 lbs.		125 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	482	482	437	437	395	395	356	356	
12	469	469	426	426	387	387	351	351	2.383
13	432	432	394	394	357	357	324	324	2.797
14	402	402	366	366	332	332	301	301	3.244
15	375	375	341	341	310	310	281	281	3.724
16	351	351	320	320	290	290	263	263	4.237
17	331	331	301	301	273	273	248	248	4.783
18	312	312	284	284	258	258	234	234	5.363
19	296	296	269	269	245	245	222	222	5.975
20	281	281	256	256	232	232	211	211	6.621
21	268	268	244	244	221	221	201	201	7.299
22	256	256	233	233	211	211	191	191	8.011
23	244	244	223	223	202	202	183	183	8.756
24	234	234	213	213	194	194	175	175	9.534
25	225	225	205	205	186	186	168	168	10.345
26	216	215	197	195	179	177	162	160	11.189
27	208	205	190	186	172	169	156	153	12.066
28	201	196	183	178	166	161	150	146	12.977
29	194	187	176	170	160	154	145	139	13.920
30	187	179	171	162	155	148	140	133	14.897
31	181	171	165	156	150	141	136	128	15.906
32	176	164	160	149	145	135	132	122	16.949
33	170	158	155	143	141	130	128	117	18.025
34	165	151	151	137	137	125	124	113	19.134
35	161	145	146	132	133	120	120	108	20.276
36	156	140	142	127	129	115	117	104	21.451
37	152	134	138	122	126	111	114	100	22.659
38	148	129	135	118	122	107	111	96	23.901
39	144	125	131	113	119	103	108	93	25.175
40	141	120	128	109	116	99	105	89	26.483
42	134		122		111		100		29.197
44	128		116		106		96		32.044
46	122		111		101		92		35.023
48	117		107		97		88		38.135
50	112		102		93		84		41.379
52	108		98		89		81		44.756
54	104		95		86		78		48.265
56	100		91		83		75		51.906
58	97		88		80		73		55.680
60	94		85		77		70		59.586
62	91		83		75		68		63.625
64	88		80		73		66		67.796
66	85		78		70		64		72.099
68	83		75		68		62		76.535
70	80		73		66		60		81.103

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

**CARNEGIE BEAM SECTIONS**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 301 30" x 10½"										
	165 lbs.		151 lbs.		138 lbs.		126 lbs.		115 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
11	464	464	423	423	385	385	350	350	318	318	2.003
12	424	424	388	388	354	354	323	323	295	295	2.383
13	391	391	358	358	327	327	299	299	273	273	2.797
14	363	363	332	332	304	304	277	277	253	253	3.244
15	339	339	310	310	284	284	259	259	236	236	3.724
16	318	318	291	291	266	266	243	243	222	222	4.237
17	299	299	274	274	250	250	228	228	209	209	4.783
18	282	282	259	259	236	236	216	216	197	197	5.363
19	268	268	245	245	224	224	204	204	187	187	5.975
20	254	254	233	233	213	213	194	194	177	177	6.621
21	242	242	222	222	203	203	185	185	169	169	7.299
22	231	231	212	212	193	193	176	176	161	161	8.011
23	221	219	202	201	185	183	169	167	154	152	8.756
24	212	208	194	190	177	173	162	158	148	144	9.534
25	203	197	186	180	170	165	155	150	142	137	10.345
26	196	188	179	171	164	156	149	142	136	130	11.189
27	188	179	172	163	158	149	144	136	131	124	12.066
28	182	170	166	155	152	142	139	129	127	118	12.977
29	175	162	161	148	147	135	134	123	122	112	13.920
30	169	155	155	142	142	129	129	118	118	107	14.897
31	164	148	150	135	137	123	125	112	114	102	15.906
32	159	142	145	129	133	118	121	107	111	98	16.949
33	154	136	141	124	129	113	118	103	107	94	18.025
34	150	130	137	119	125	108	114	99	104	90	19.134
35	145	125	133	114	122	104	111	94	101	86	20.276
36	141		129		118		108		98		21.451
37	137		126		115		105		96		22.659
38	134		122		112		102		93		23.901
39	130		119		109		100		91		25.175
40	127		116		106		97		89		26.483
41	124		114		104		95		86		27.823
42	121		111		101		92		84		29.197
43	118		108		99		90		82		30.604
44	116		106		97		88		81		32.044
45	113		103		95		86		79		33.517
46	111		101		92		84		77		35.023
47	108		99		90		83		75		36.563
48	106		97		89		81		74		38.135
49	104		95		87		79		72		39.741
50	102		93		85		78		71		41.379
51	100		91		83		76		70		43.051
52	98		90		82		75		68		44.756
53	96		88		80		73		67		46.494
54	94		86		79		72		66		48.265
55	92		85		77		71		64		50.069
56	91		83		76		69		63		51.906
57	89		82		75		68		62		53.777
58	88		80		73		67		61		55.680
59	86		79		72		66		60		57.617
60	85		78		71		65		59		59.586
61	83		76		70		64		58		61.589
62	82		75		69		63		57		63.625

Lands above upper horizontal lines will produce maximum shear in webs.

Lands below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

## CARNEGIE BEAM SECTIONS—Continued

## ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS

Maximum Bending Stress, 16,000 Pounds per Square Inch

City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection
	CB 271 27"x9 $\frac{3}{4}$ "												
	137 lbs.		124 lbs.		112 lbs.		101 lbs.		91 lbs.		85 lbs.		
	Laterally												
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
10	382	382	344	344	309	309	277	277	249	249	231	231	1.655
11	348	348	315	315	284	284	257	257	231	231	210	210	2.003
12	319	319	289	289	261	261	235	235	212	212	192	192	2.383
13	294	294	267	267	241	241	217	217	196	196	177	177	2.797
14	273	273	247	247	223	223	202	202	182	182	165	165	3.244
15	255	255	231	231	208	208	188	188	169	169	154	154	3.724
16	239	239	217	217	195	195	176	176	159	159	144	144	4.237
17	225	225	204	204	184	184	166	166	150	150	136	136	4.783
18	213	213	192	192	174	174	157	157	141	141	128	128	5.363
19	201	201	182	182	165	165	149	149	134	134	121	121	5.975
20	191	191	173	173	156	156	141	141	127	127	115	115	6.621
21	182	182	165	164	149	148	134	133	121	120	110	109	7.299
22	174	171	157	155	142	140	128	126	116	113	105	103	8.011
23	166	162	151	146	136	132	123	119	111	107	100	97	8.756
24	159	153	144	139	130	125	118	112	106	101	96	92	9.534
25	153	145	139	131	125	118	113	107	102	96	92	87	10.345
26	147	138	133	125	120	112	109	101	98	91	89	82	11.189
27	142	131	128	118	116	107	105	96	94	86	85	78	12.066
28	137	125	124	113	112	102	101	91	91	82	82	75	12.977
29	132	119	119	107	108	97	97	87	88	78	80	71	13.920
30	128	113	115	102	104	92	94	83	85	75	77	68	14.897
31	123	108	112	98	101	88	91	79	82	71	74	65	15.906
32	120	103	108	93	98	84	88	76	79	68	72	65	16.949
33	116	99	105	89	95	86	86	77	77	68	70	65	18.025
34	113		102	89	92	83	83	75	75	68	68	65	19.134
35	109		99	89	89	81	81	73	73	66	66	65	20.276
36	106		96	87	87	78	78	71	71	64	64	65	21.451
37	103		94	85	85	76	76	69	69	62	62	65	22.659
38	101		91	82	82	74	74	67	67	61	61	65	23.901
39	98		89	80	80	72	72	65	65	59	59	65	25.175
40	96		87	78	78	71	71	64	64	58	58	65	26.483
41	93		85	76	76	69	69	62	62	56	56	65	27.823
42	91		82	74	74	67	67	61	61	55	55	65	29.197
43	89		81	73	73	66	66	59	59	54	54	65	30.604
44	87		79	71	71	64	64	58	58	52	52	65	32.044
45	85		77	69	69	63	63	56	56	51	51	65	33.517
46	83		75	68	68	61	61	55	55	50	50	65	35.023
47	81		74	67	67	60	60	54	54	49	49	65	36.563
48	80		72	65	65	59	59	53	53	48	48	65	38.135
49	78		71	64	64	58	58	52	52	47	47	65	39.741
50	77		69	63	63	56	56	51	51	46	46	65	41.379
51	75		68	61	61	55	55	50	50	45	45	65	43.051
52	74		67	60	60	54	54	49	49	44	44	65	44.756
53	72		65	59	59	53	53	48	48	44	44	65	46.494
54	71		64	58	58	52	52	47	47	43	43	65	48.265
55	70		63	57	57	51	51	46	46	42	42	65	50.069
56	68		62	56	56	50	50	45	45	41	41	65	51.906
57	67		61	55	55	49	49	45	45	40	40	65	53.777

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 213 21"x13"										
	136 lbs.		128 lbs.		120 lbs.		112 lbs.		104 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	260	260	244	244	227	227	211	211	195	195	
13	253	253	238	238	223	223	208	208	193	193	2.797
14	235	235	221	221	207	207	194	194	180	180	3.244
15	219	219	207	207	194	194	181	181	168	168	3.724
16	206	206	194	194	181	181	169	169	157	157	4.237
17	194	194	182	182	171	171	159	159	148	148	4.783
18	183	183	172	172	161	161	151	151	140	140	5.363
19	173	173	163	163	153	153	143	143	132	132	5.975
20	164	164	155	155	145	145	136	136	126	126	6.621
21	157	157	148	148	138	138	129	129	120	120	7.299
22	150	150	141	141	132	132	123	123	114	114	8.011
23	143	143	135	135	126	126	118	118	109	109	8.756
24	137	137	129	129	121	121	113	113	105	105	9.534
25	132	132	124	124	116	116	108	108	101	101	10.345
26	127	127	119	119	112	112	104	104	97	97	11.189
27	122	122	115	115	108	108	100	100	93	93	12.066
28	117	117	111	110	104	103	97	96	90	89	12.977
29	113	112	107	105	100	98	93	92	87	85	13.920
30	110	107	103	101	97	94	90	88	84	82	14.897
31	106	103	100	96	94	90	87	84	81	78	15.906
32	103	98	97	93	91	87	85	81	79	75	16.949
33	100	94	94	89	88	83	82	78	76	72	18.025
34	97	91	91	85	85	80	80	75	74	69	19.134
35	94	87	89	82	83	77	77	72	72	67	20.276
36	91	84	86	79	81	74	75	69	70	64	21.451
37	89	81	84	76	78	71	73	67	68	62	22.659
38	87	78	82	74	76	69	71	64	66	60	23.901
39	84	75	79	71	74	66	69	62	64	57	25.175
40	82	73	77	68	73	64	68	60	63	55	26.483
41	80	70	76	66	71	62	66	58	61	53	27.823
42	78	68	74	64	69	60	65	56	60	52	29.197
43	77	66	72	62	68		63		58		30.604
44			70		66		62		57		32.044
45			69		65		60		56		33.517

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 212 21"x 9"								
	98 lbs.		92 lbs.		86 lbs.		80 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
	229	229	213	213	199	199	184	184	
10	223	223	210	210	196	196	182	182	1.655
11	203	203	191	191	178	178	166	166	2.003
12	186	186	175	175	163	163	152	152	2.383
13	172	172	161	161	151	151	140	140	2.797
14	159	159	150	150	140	140	130	130	3.244
15	149	149	140	140	131	131	122	122	3.724
16	139	139	131	131	122	122	114	114	4.237
17	131	131	123	123	115	115	107	107	4.783
18	124	124	116	116	109	109	101	101	5.363
19	117	117	110	110	103	103	96	96	5.975
20	112	110	105	103	98	96	91	90	6.621
21	106	103	100	97	93	91	87	84	7.299
22	101	97	95	91	89	85	83	79	8.011
23	97	92	91	86	85	80	79	75	8.756
24	93	87	87	81	82	76	76	71	9.534
25	89	82	84	77	78	72	73	67	10.345
26	86	78	81	73	75	68	70	63	11.189
27	83	74	78	69	73	65	68	60	12.066
28	80	70	75	66	70	61	65	57	12.977
29	77	67	72	63	68	58	63	54	13.920
30	74	64	70	60	65	56	61		14.897
31	72		68		63		59		15.906
32	70		65		61		57		16.949
33	68		64		59		55		18.025
34	66		62		58		54		19.134
35	64		60		56		52		20.276
36	62		58		54		51		21.451
37	60		57		53		49		22.659
38	59		55		52		48		23.901
39	57		54		50		47		25.175
40	56		52		49		46		26.483
41	54		51		48		44		27.823
42	53		50		47		43		29.197
43	52		49		46		42		30.604
44	51		48		45		41		32.044
45	50		47		44		41		33.517

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot										Coefficient of Deflection
	CB 211 21"x8"										
	76 lbs.		70 lbs.		64 lbs.		58 lbs.		55 lbs.		
	Laterally										
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
8	200	200	184	184	167	167	151	151	150	150	1.059
9	187	187	172	172	157	157	143	143	149	149	1.341
10	168	168	155	155	142	142	128	128	132	132	1.655
11	153	153	141	141	129	129	117	117	119	119	2.003
12	140	140	129	129	118	118	107	107	99	99	2.383
13	129	129	119	119	109	109	99	99	92	92	2.797
14	120	120	111	111	101	101	92	92	85	85	3.244
15	112	112	103	103	94	94	86	86	79	79	3.724
16	105	105	97	97	89	89	80	80	74	74	4.237
17	99	99	91	91	83	83	75	75	70	70	4.783
18	93	92	86	85	79	77	71	70	66	65	5.363
19	88	86	82	79	75	72	68	65	63	61	5.975
20	84	80	77	74	71	67	64	61	60	57	6.621
21	80	75	74	69	67	63	61	57	57	53	7.299
22	76	71	70	65	64	59	58	54	54	50	8.011
23	73	67	67	61	62	56	56	50	52	47	8.756
24	70	63	65	58	59	53	53	48	50	44	9.534
25	67	59	62	54	57	50	51	45	48	42	10.345
26	65	56	60	51	55	47	49	42	46	39	11.189
27	62	53	57	52	52	48	48	44	44	37	12.066
28	60		55	51	51	46	46	43	43		12.977
29	58		53	49	49	44	44	41	41		13.920
30	56		52	47	47	43	43	40	40		14.897
31	54		50	46	46	41	41	38	38		15.906
32	53		48	44	44	40	40	37	37		16.949
33	51		47	43	43	39	39	36	36		18.025
34	49		46	42	42	38	38	35	35		19.134
35	48		44	40	40	37	37	34	34		20.276
36	47		43	39	39	36	36	33	33		21.451
37	45		42	38	38	35	35	32	32		22.659
38	44		41	37	37	34	34	31	31		23.901
39	43		40	36	36	33	33	31	31		25.175
40	42		39	35	35	32	32	30	30		26.483
41	41		38	35	35	31	31	29	29		27.823
42	40		37	34	34	31	31	28	28		29.197
43	39		36	33	33	30	30	28	28		30.604
44	38		35	32	32	29	29	27	27		32.044
45	37		34	31	31	28	28	26	26		33.517
46	36										

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 124C 12" x 12"								
	102 lbs.		95 lbs.		88 lbs.		82 lbs.		
	Laterally								
Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free		
	226.3	226.3							
6	213.7	213.7	185.0	185.0					0.596
7	183.2	183.2	176.9	176.9					0.811
8	160.3	160.3	154.8	154.8	144.0	144.0			1.059
9	142.5	142.5	137.6	137.6	132.7	132.7			1.341
10	128.2	128.2	123.8	123.8	119.5	119.5	108.7	108.7	1.655
11	116.6	116.6	112.6	112.6	108.6	108.6	105.2	105.2	2.003
12	106.8	106.8	103.2	103.2	99.6	99.6	96.4	96.4	2.383
13	98.6	98.6	95.3	95.3	91.9	91.9	89.0	89.0	2.797
14	91.6	91.6	88.5	88.5	85.3	85.3	82.7	82.7	3.244
15	85.5	85.5	82.6	82.6	79.6	79.6	77.2	77.2	3.724
16	80.1	80.1	77.4	77.4	74.7	74.7	72.3	72.3	4.237
17	75.4	75.4	72.8	72.8	70.3	70.3	68.1	68.1	4.783
18	71.2	71.2	68.8	68.8	66.4	66.4	64.3	64.3	5.363
19	67.5	67.5	65.2	65.2	62.9	62.9	60.9	60.9	5.975
20	64.1	64.1	61.9	61.9	59.7	59.7	57.9	57.9	6.621
21	61.1	61.1	59.0	59.0	56.9	56.9	55.1	55.1	7.299
22	58.3	58.3	56.3	56.3	54.3	54.3	52.6	52.6	8.011
23	55.7	55.7	53.8	53.8	51.9	51.9	50.3	50.3	8.756
24	53.4	53.4	51.6	51.6	49.8	49.8	48.2	48.2	9.534
25	51.3		49.5		47.8		46.3		10.345
26	49.3		47.6		45.9		44.5		11.189
27	47.5		45.9		44.2		42.9		12.066

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

**CARNEGIE BEAM SECTIONS—Continued**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 16,000 Pounds per Square Inch**  
**City of Chicago Code**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot												Coefficient of Deflection
	CB 124B 12'' x 12''						CB 123B 12'' x 9''						
	76 lbs.		70 lbs.		65 lbs.		66 lbs.		60 lbs.		55 lbs.		
	Laterally						Laterally						
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
7	160.8 142.3	160.8 142.3	125.5	125.5									0.811
8	124.5	124.5	119.7	119.7									1.059
9	110.7	110.7	106.4	106.4	96.0	96.0	109.8	109.8	99.1	99.1	90.0	90.0	1.341
10	99.6	99.6	95.8	95.8	92.7	92.7	91.5	91.5	83.1	83.1	76.2	76.2	1.655
11	90.6	90.6	87.1	87.1	84.3	84.3	83.2	83.2	75.5	75.5	69.2	69.2	2.003
12	83.0	83.0	79.8	79.8	77.2	77.2	76.3	76.3	69.2	69.2	63.5	63.5	2.383
13	76.6	76.6	73.7	73.7	71.3	71.3	70.4	70.4	63.9	63.9	58.6	58.6	2.797
14	71.2	71.2	68.4	68.4	66.2	66.2	65.4	65.4	59.4	59.4	54.4	54.4	3.244
15	66.4	66.4	63.9	63.9	61.8	61.8	61.0	61.0	55.4	55.4	50.8	50.8	3.724
16	62.3	62.3	59.9	59.9	57.9	57.9	57.2	57.2	51.9	51.9	47.6	47.6	4.237
17	58.6	58.6	56.3	56.3	54.5	54.5	53.8	53.8	48.9	48.9	44.8	44.8	4.783
18	55.3	55.3	53.2	53.2	51.5	51.5	50.8	50.8	46.2	46.2	42.3	42.3	5.363
19	52.4	52.4	50.4	50.4	48.8	48.8	48.2	48.1	43.7	43.6	40.1	40.0	5.975
20	49.8	49.8	47.9	47.9	46.3	46.3	45.8	45.1	41.5	40.9	38.1	37.4	6.621
21	47.4	47.4	45.6	45.6	44.1	44.1	43.6	42.4	39.6	38.4	36.3	35.2	7.299
22	45.3	45.3	43.5	43.5	42.1	42.1	41.6	39.9	37.8	36.2	34.6	33.1	8.011
23	43.3	43.3	41.6	41.6	40.3	40.3	39.8	37.6	36.1	34.1	33.1	31.2	8.756
24	41.5	41.5	39.9	39.9	38.6	38.6	38.1	35.6	34.6	32.2	31.7	29.5	9.534
25	39.9		38.3		37.1		36.6		33.2		30.5		10.345
26	38.3		36.8		35.7		35.2		32.0		29.3		11.189
27	36.9		35.5		34.3		33.9		30.8		28.2		12.066

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.

CARNEGIE BEAM SECTIONS—Continued  
 ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS  
 Maximum Bending Stress, 16,000 Pounds per Square Inch  
 City of Chicago Code

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	CB 103A 10" x 10"								
	64 lbs.		59 lbs.		54 lbs.		49 lbs.		
	Laterally								
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
5	158.2	158.2	128.8	128.8					0.414
	131.8	131.8	126.5	126.5					
6	109.9	109.9	105.4	105.4	99.4	99.4			0.596
7	94.2	94.2	90.4	90.4	86.7	86.7			0.811
8	82.4	82.4	79.1	79.1	75.9	75.9			1.059
9	73.2	73.2	70.3	70.3	67.4	67.4	70.0	70.0	1.341
	65.9	65.9	63.3	63.3	60.7	60.7	58.0	58.0	
10	65.9	65.9	63.3	63.3	60.7	60.7	58.0	58.0	1.655
11	59.9	59.9	57.5	57.5	55.2	55.2	52.8	52.8	2.003
12	54.9	54.9	52.7	52.7	50.6	50.6	48.4	48.4	2.383
13	50.7	50.7	48.7	48.7	46.7	46.7	44.6	44.6	2.797
14	47.1	47.1	45.2	45.2	43.4	43.4	41.4	41.4	3.244
15	43.9	43.9	42.2	42.2	40.5	40.5	38.7	38.7	3.724
16	41.2	41.2	39.5	39.5	37.9	37.9	36.3	36.3	4.237
17	38.8	38.8	37.2	37.2	35.7	35.7	34.1	34.1	4.783
18	36.6	36.6	35.1	35.1	33.7	33.7	32.2	32.2	5.363
19	34.7	34.7	33.3	33.3	31.9	31.9	30.5	30.5	5.975
20	33.0	33.0	31.6	31.6	30.3	30.3	29.0	29.0	6.621
21	31.4		30.1		28.9		27.6		7.299
22	30.0		28.8		27.6		26.4		8.011
23	28.7		27.5		26.4		25.2		8.756

Loads above upper horizontal lines will produce maximum allowable shear in webs.

Loads below lower horizontal lines will produce excessive deflections.

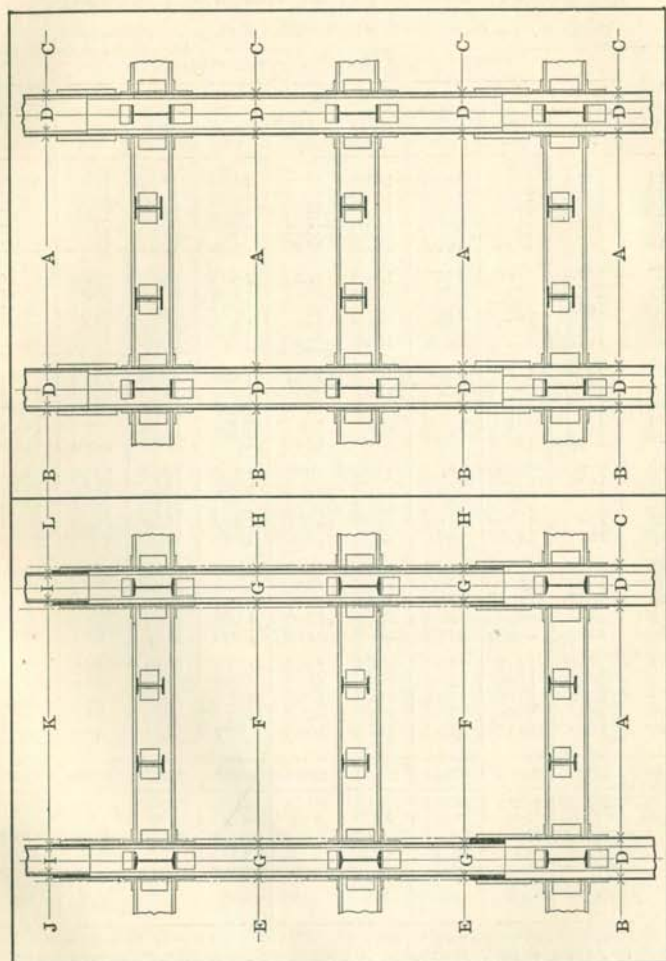
For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



**STANDARD MILL SECTIONS**  
**ALLOWABLE UNIFORM LOADS IN THOUSANDS OF POUNDS**  
**Maximum Bending Stress, 16,000 Pounds per Square Inch**  
**City of Chicago Code**

Span in Feet	Nominal Depth and Flange Width—Weight per Foot								Coefficient of Deflection
	B 40 9" x 5 $\frac{1}{4}$ "				B 39 8" x 5"				
	25 lbs.		20.5 lbs.		21 lbs.		17.5 lbs.		
	Laterally				Laterally				
	Fixed	Free	Fixed	Free	Fixed	Free	Fixed	Free	
3	68.4	68.4			57.6	57.6			0.149
4	56.6	56.6	42.1	42.1	42.3	42.3	37.0	37.0	0.265
5	45.3	45.3	41.0	41.0	33.8	33.8	30.5	30.5	0.414
6	37.7	37.7	34.1	34.1	28.2	28.2	25.4	25.4	0.596
7	32.3	32.3	29.3	29.3	24.2	24.2	21.8	21.8	0.811
8	28.3	28.3	25.6	25.6	21.1	21.1	19.1	19.1	1.059
9	25.1	25.1	22.8	22.8	18.8	18.8	16.9	16.9	1.341
10	22.6	22.6	20.5	20.5	16.9	16.9	15.3	15.3	1.655
11	20.6	20.6	18.6	18.6	15.4	15.3	13.9	13.7	2.003
12	18.9	18.5	17.1	16.6	14.1	13.7	12.7	12.2	2.383
13	17.4	16.7	15.8	15.0	13.0	12.3	11.7	11.0	2.797
14	16.2	15.2	14.6	13.6	12.1	11.1	10.9	9.9	3.244
15	15.1	13.8	13.7	12.4	11.3	10.1	10.2	9.0	3.724
16	14.1	12.6	12.8	11.3	10.6	9.2	9.5	8.2	4.237
17	13.3	11.6	12.0	10.4	10.0		9.0		4.783
18	12.6		11.4		9.4		8.5		5.363
19	11.9		10.8		8.1		8.0		5.975
20	11.3		10.2						6.621
21	10.8		9.8						7.299

Loads above upper horizontal lines will produce maximum allowable shear in webs.  
 Loads below lower horizontal lines will produce excessive deflections.  
 For maximum safe loads, see tables of Maximum Bending Moments and Web Resistances.



TYPICAL FRAMING OF VARIABLE DEPTH AND CONSTANT DEPTH COLUMNS

## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

## Unit Stress—American Institute of Steel Construction—1923

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot								
	CB 146 14"x15"								
	425 lbs.	405 lbs.	385 lbs.	365 lbs.	345 lbs.	325 lbs.	305 lbs.	295 lbs.	285 lbs.
11	1875	1787	1698	1610	1522	1434	1346	1301	1257
12	1875	1787	1698	1610	1522	1434	1346	1301	1257
13	1875	1787	1698	1610	1522	1434	1346	1301	1257
14	1875	1787	1698	1610	1522	1434	1346	1301	1257
15	1875	1787	1698	1610	1522	1434	1346	1301	1257
16	1875	1787	1698	1610	1522	1434	1346	1301	1257
17	1875	1787	1698	1610	1522	1434	1346	1301	1257
18	1875	1787	1698	1610	1522	1434	1346	1301	1257
19	1875	1787	1698	1610	1522	1434	1346	1301	1257
20	1875	1787	1698	1610	1522	1434	1346	1301	1257
21	1875	1787	1698	1610	1521	1430	1339	1294	1249
22	1859	1769	1677	1587	1496	1407	1317	1273	1229
23	1829	1740	1650	1561	1472	1384	1295	1251	1208
24	1799	1712	1622	1535	1447	1360	1272	1229	1187
25	1769	1683	1594	1509	1422	1336	1250	1208	1165
26	1739	1654	1567	1482	1396	1312	1227	1186	1144
27	1708	1625	1539	1455	1371	1288	1205	1164	1123
28	1678	1595	1511	1429	1346	1264	1182	1142	1102
29	1647	1566	1483	1402	1320	1240	1159	1120	1080
30	1617	1537	1455	1376	1295	1217	1137	1098	1059
31	1587	1508	1427	1349	1270	1193	1115	1077	1038
32	1557	1479	1400	1323	1245	1170	1092	1055	1018
33	1527	1451	1373	1297	1221	1146	1070	1034	997
34	1497	1423	1346	1272	1196	1123	1049	1013	977
35	1468	1395	1319	1246	1172	1100	1027	992	957
36	1439	1367	1293	1221	1148	1078	1006	971	937
37	1411	1340	1266	1196	1125	1056	985	951	917
38	1382	1313	1241	1172	1102	1034	965	931	898
39	1354	1286	1215	1148	1079	1012	944	911	879
40	1327	1260	1190	1124	1056	991	924	892	860
Area, in. <sup>2</sup>	124.99	119.12	113.22	107.34	101.47	95.58	89.70	86.76	83.82
I-1, in. <sup>4</sup>	6420.5	6010.5	5609.4	5221.4	4843.4	4475.9	4121.5	3948.1	3778.1
r <sub>1</sub> -1, in.	7.17	7.10	7.04	6.97	6.91	6.84	6.78	6.75	6.71
I <sub>2</sub> -2, in. <sup>4</sup>	2301.0	2168.2	2037.4	1909.1	1783.5	1659.9	1539.1	1479.4	1420.7
r <sub>2</sub> -2, in.	4.29	4.27	4.24	4.22	4.19	4.17	4.14	4.13	4.12
Weight Lbs. per Foot	425	405	385	365	345	325	305	295	285

Safe load values above upper zig-zag line are for ratios of  $l/r$  not over 60, those between zig-zag lines are for ratios up to 120  $l/r$  and those below lower zig-zag line are for ratios not over 200  $l/r$ .

CARNEGIE BEAM SECTIONS—Continued

14-INCH COLUMNS

ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—American Institute of Steel Construction—1923

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 146 14"x15"									
	275 lbs.	265 lbs.	255 lbs.	245 lbs.	235 lbs.	225 lbs.	215 lbs.	205 lbs.	195 lbs.	185 lbs.
11	1213	1169	1125	1081	1037	993	949	904	860	816
12	1213	1169	1125	1081	1037	993	949	904	860	816
13	1213	1169	1125	1081	1037	993	949	904	860	816
14	1213	1169	1125	1081	1037	993	949	904	860	816
15	1213	1169	1125	1081	1037	993	949	904	860	816
16	1213	1169	1125	1081	1037	993	949	904	860	816
17	1213	1169	1125	1081	1037	993	949	904	860	816
18	1213	1169	1125	1081	1037	993	949	904	860	816
19	1213	1169	1125	1081	1037	993	949	904	860	816
20	1213	1169	1125	1081	1037	993	949	904	860	815
21	1203	1158	1114	1069	1024	979	935	890	846	801
22	1183	1139	1095	1051	1006	963	919	874	831	787
23	1163	1120	1076	1033	989	946	902	859	816	773
24	1143	1100	1057	1014	971	929	886	843	801	759
25	1122	1080	1038	996	953	912	870	828	786	745
26	1101	1060	1019	977	936	895	853	812	771	731
27	1081	1040	1000	959	918	878	837	796	756	716
28	1060	1020	980	940	900	860	821	781	741	702
29	1040	1000	961	922	882	843	804	765	727	688
30	1019	981	942	903	864	826	788	749	712	674
31	999	961	923	885	847	810	772	734	697	660
32	979	942	905	867	830	793	756	719	683	646
33	959	922	886	849	812	777	740	704	668	632
34	939	903	868	832	795	760	725	689	654	619
35	920	885	850	814	779	744	709	674	640	606
36	900	866	832	797	762	728	694	660	626	593
37	881	848	814	780	746	713	679	645	613	580
38	863	830	797	763	730	697	664	631	599	567
39	844	812	780	747	714	682	650	618	586	554
40	826	795	763	731	699	668	636	604	573	542
Area, in. <sup>2</sup>	80.87	77.93	74.99	72.06	69.11	66.17	63.23	60.28	57.34	54.41
I-1, in. <sup>4</sup>	3607.8	3442.4	3280.0	3119.6	2961.9	2806.2	2654.7	2505.0	2358.2	2213.5
r <sub>1</sub> -1, in.	6.68	6.65	6.61	6.58	6.55	6.51	6.48	6.45	6.41	6.38
I-2, in. <sup>4</sup>	1362.0	1304.2	1247.1	1190.6	1134.5	1079.1	1024.5	970.3	916.8	863.9
r <sub>2</sub> -2, in.	4.10	4.09	4.08	4.06	4.05	4.04	4.03	4.01	4.00	3.98
Weight Lbs. per Foot	275	265	255	245	235	225	215	205	195	185

Safe load values above upper zig-zag line are for ratios of l/r not over 60, those between zig-zag lines are for ratios up to 120 l/r and those below lower zig-zag line are for ratios not over 200 l/r.



## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—American Institute of Steel Construction—1923

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot										
	CB 146 14"x15"										
	175 lbs.	165 lbs.	155 lbs.	145 lbs.	135 lbs.	131 lbs.	125 lbs.	115 lbs.	106 lbs.	96 lbs.	86 lbs.
11	772	728	684	640	596	578	551	507	468	423	379
12	772	728	684	640	596	578	551	507	468	423	379
13	772	728	684	640	596	578	551	507	468	423	379
14	772	728	684	640	596	578	551	507	468	423	379
15	772	728	684	640	596	578	551	507	468	423	379
16	772	728	684	640	596	578	551	507	468	423	379
17	772	728	684	640	596	578	551	507	468	423	379
18	772	728	684	640	596	578	551	507	468	423	379
19	772	728	684	640	596	576	551	507	468	423	379
20	770	725	680	636	591	566	547	502	462	418	374
21	757	713	668	625	581	555	537	494	454	411	367
22	744	700	657	614	570	545	527	485	446	403	360
23	730	688	645	602	560	534	518	476	438	396	354
24	717	675	633	591	549	524	508	467	429	388	347
25	703	662	621	580	539	513	498	458	421	380	340
26	690	649	608	568	528	502	488	448	412	373	333
27	676	637	596	557	518	492	478	439	404	365	326
28	663	624	584	546	507	481	468	430	396	358	319
29	649	611	572	535	497	471	459	421	387	350	312
30	636	599	560	523	486	460	449	413	379	343	306
31	623	586	549	512	476	450	439	404	371	335	299
32	610	574	537	502	466	440	430	395	363	328	293
33	597	561	526	491	456	430	421	386	355	321	286
34	584	549	514	480	446	420	411	378	347	314	280
35	571	538	503	470	436	410	402	369	339	307	273
36	559	526	492	459	426	401	393	361	332	300	267
37	547	514	481	449	417	392	385	353	324	293	261
38	535	503	470	439	407	382	376	345	317	286	255
39	523	492	460	429	398	374	368	337	310	280	249
40	511	481	450	420	389	365	359	330	303	273	244
Area, in. <sup>2</sup>	51.47	48.52	45.58	42.64	39.70	38.52	36.75	33.82	31.18	28.23	25.28
I <sub>1-1</sub> , in. <sup>4</sup>	2071.7	1932.6	1796.8	1662.7	1530.4	1358.4	1402.1	1275.9	1164.1	1042.1	923.0
r <sub>1-1</sub> , in.	6.34	6.31	6.28	6.24	6.21	5.94	6.18	6.14	6.11	6.08	6.04
I <sub>2-2</sub> , in. <sup>4</sup>	811.6	759.9	709.0	658.5	608.4	547.3	559.4	510.9	467.6	419.9	373.1
r <sub>2-2</sub> , in.	3.97	3.96	3.94	3.93	3.92	3.77	3.90	3.89	3.87	3.86	3.84
Weight Lbs. per Foot	175	165	155	145	135	131	125	115	106	96	86

Safe load values above upper zig-zag line are for ratios of  $l/r$  not over 60, those between zig-zag lines are for ratios up to 120  $l/r$  and those below lower zig-zag line are for ratios not over 200  $l/r$ .

## CARNEGIE BEAM SECTIONS—Continued

## 12-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—American Institute of Steel Construction—1923

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 124C 12"x12"				CB 124B 12"x12"			CB 123B 12"x9"		
	102 lbs.	95 lbs.	88 lbs.	82 lbs.	76 lbs.	70 lbs.	65 lbs.	66 lbs.	60 lbs.	55 lbs.
11	450	419	388	362	335	309	287	291	265	243
12	450	419	388	362	335	309	287	285	259	237
13	450	419	388	362	335	309	287	276	251	229
14	450	419	388	362	335	309	287	267	243	222
15	447	418	388	362	331	307	287	258	234	214
16	437	409	381	357	324	300	281	249	226	207
17	427	399	373	349	316	293	275	241	218	199
18	416	390	364	341	308	286	268	232	210	192
19	405	380	355	333	299	279	262	223	202	185
20	395	370	346	325	291	271	255	215	195	178
21	384	360	337	317	283	264	248	207	187	171
22	374	351	328	309	275	257	242	199	180	164
23	363	341	320	301	268	250	235	191	173	158
24	353	332	311	293	260	243	229	184	166	152
25	343	322	302	285	252	236	223	177	160	146
26	333	313	294	277	245	229	216	170	154	140
27	323	304	286	269	238	222	210	163	148	135
28	314	295	278	262	230	216	204	157	142	129
29	304	287	270	255	224	210	199	151	136	124
30	295	278	262	247	217	203	193	145	131	120
31	287	270	254	240	210	197	187	139	126	115
32	278	262	247	234	204	191	182	134	121	111
33	270	255	240	227	198	186	177	129	117	106
34	262	247	233	220	192	180	171	124	112	102
35	254	240	226	214	186	175	166	120	108	99
36	246	233	220	208	180	170	162	115	104	95
37	239	226	213	202	175	165	157	111	100	91
38	232	219	207	196	169	160	152			
39	225	213	201	191	164	155	148			
40	218	207	195	185	160	151	144			
Area, in. <sup>2</sup>	20.99	27.93	25.88	24.11	22.35	20.58	19.11	19.41	17.65	16.17
I <sub>1-1</sub> , in. <sup>4</sup>	721.4	696.6	672.0	650.8	560.2	539.0	521.3	525.7	472.0	428.4
r <sub>1-1</sub> , in.	4.90	4.99	5.10	5.20	5.01	5.12	5.22	5.20	5.17	5.15
I <sub>2-2</sub> , in. <sup>4</sup>	260.6	249.7	239.2	230.5	187.5	180.7	175.2	99.1	89.0	80.9
r <sub>2-2</sub> , in.	2.95	2.99	3.04	3.09	2.90	2.96	3.03	2.26	2.25	2.24
Weight Lbs. per Foot	102	95	88	82	76	70	65	66	60	55

Safe load values above upper zig-zig line are for ratios of  $l/r$  not over 60, those between zig-zag lines are for ratios up to 120  $l/r$  and those below lower zig-zag line are for ratios not over 200  $l/r$ .

## CARNEGIE BEAM SECTIONS—Continued

## 10 AND 6-INCH COLUMNS

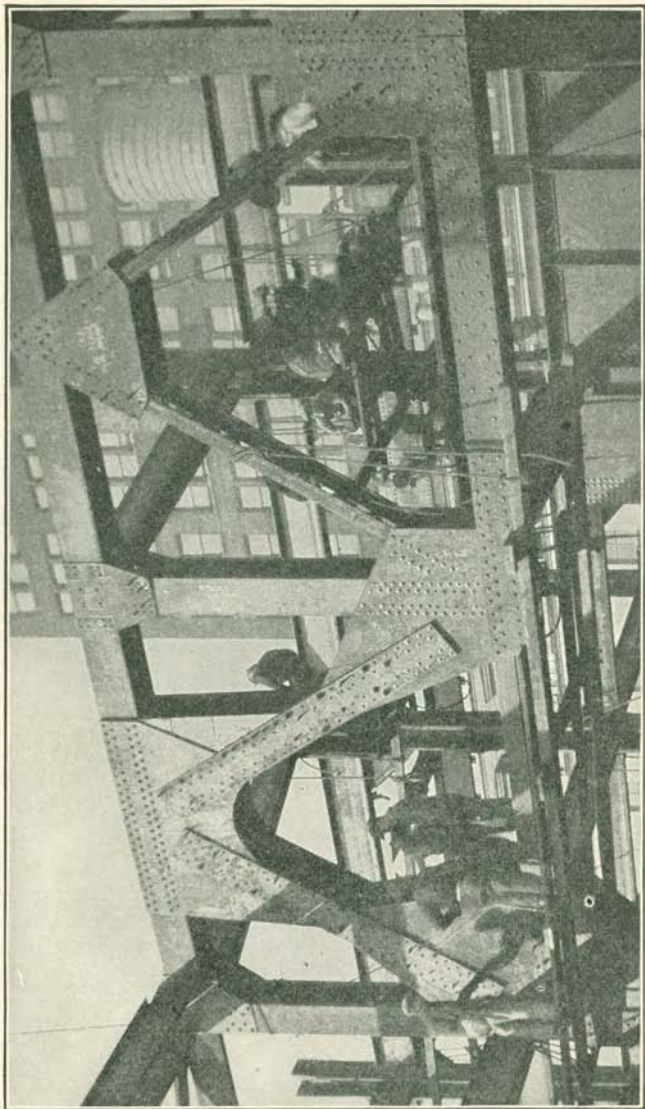
## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—American Institute of Steel Construction—1923

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 103A 10"x10"					CB 61 6"x9½"				
	64 lbs.	59 lbs.	54 lbs.	49 lbs.	88 lbs.	80 lbs.	70 lbs.	60 lbs.	50 lbs.	40 lbs.
3	282	260	238	216	388	353	308	264	221	176
4	282	260	238	216	388	353	308	264	221	176
5	282	260	238	216	388	353	308	264	221	176
6	282	260	238	216	388	353	308	264	221	176
7	282	260	238	216	388	353	308	264	221	176
8	282	260	238	216	388	353	308	264	221	176
9	282	260	238	216	388	353	308	264	221	176
10	282	260	238	216	388	353	308	264	221	176
11	282	260	238	216	388	353	308	264	221	176
12	281	260	238	216	388	353	308	264	221	176
13	273	254	234	214	388	352	306	261	217	172
14	265	246	228	209	378	343	298	254	211	167
15	257	239	221	203	368	333	290	247	205	162
16	249	231	214	197	358	324	281	240	198	157
17	240	224	208	191	347	314	273	232	192	152
18	232	216	201	185	337	305	265	225	186	147
19	224	209	194	179	327	295	256	218	180	142
20	216	202	188	173	316	286	248	211	174	137
21	209	195	182	168	306	277	240	203	168	133
22	201	188	175	162	296	268	232	197	162	128
23	194	181	169	157	287	259	224	190	157	123
24	187	175	163	151	277	250	216	183	151	119
25	180	168	158	146	268	242	209	177	146	115
26	173	162	152	141	259	233	202	171	141	111
27	167	156	147	136	250	225	195	165	136	107
28	161	151	141	131	242	218	188	159	131	103
29	155	145	136	127	234	210	182	154	126	99
30	149	140	132	123	226	203	175	148	122	96
31	144	135	127	118	218	196	169	143	117	92
32	138	130	123	114	211	190	164	138	113	89
33	133	125	118	110	204	183	158	133	109	86
34	129	121	114	107	197	177	153	129	105	83
35	124	117	110	103	190	171	147	124	102	80
36	120	113	106	99	184	165	142	120	98	77
37	115	109	103	96	178	160	138	116	95	74
38	111	105	99	93	172	155	133	112	92	72
39	108	101	96	90	167	150	129	108	89	69
40		98	93	87	161	145	124	105	86	67
Area, in. <sup>2</sup>	18.81	17.34	15.87	14.40	25.87	23.52	20.58	17.63	14.70	11.76
I <sub>1-1</sub> , in. <sup>4</sup>	308.8	296.5	284.3	272.0	187.3	164.9	138.7	113.9	91.0	69.6
r <sub>1-1</sub> , in.	4.05	4.13	4.23	4.35	2.69	2.65	2.60	2.54	2.49	2.43
I <sub>2-2</sub> , in. <sup>4</sup>	106.3	101.7	97.3	93.0	175.4	156.3	133.3	111.1	90.1	69.9
r <sub>2-2</sub> , in.	2.38	2.42	2.48	2.54	2.60	2.58	2.54	2.51	2.48	2.44
Weight Lbs. per Foot	64	59	54	49	88	80	70	60	50	40

Safe load values above upper zig-zag line are for ratios of  $l/r$  not over 60, those between zig-zag lines are for ratios up to 120  $l/r$  and those below lower zig-zag line are for ratios not over 200  $l/r$ .





CARNEGIE BEAM SECTIONS IN HEAVY TRUSS CONSTRUCTION



## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of New York Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot								
	CB 146 14"x15"								
	425 lbs.	405 lbs.	385 lbs.	365 lbs.	345 lbs.	325 lbs.	305 lbs.	295 lbs.	285 lbs.
1	1975	1882	1789	1696	1603	1510	1417	1371	1324
2	1951	1859	1767	1675	1583	1491	1399	1353	1307
3	1926	1836	1744	1653	1562	1472	1381	1335	1290
4	1902	1812	1722	1632	1542	1452	1362	1318	1273
5	1877	1789	1699	1611	1522	1433	1344	1300	1256
6	1853	1765	1677	1589	1501	1414	1326	1282	1239
7	1829	1741	1655	1568	1481	1395	1308	1265	1221
8	1804	1718	1632	1547	1461	1375	1290	1247	1204
9	1780	1695	1610	1525	1440	1356	1271	1229	1187
10	1755	1672	1587	1504	1420	1337	1253	1212	1170
11	1731	1648	1565	1482	1400	1317	1235	1194	1153
12	1706	1625	1542	1461	1379	1298	1217	1176	1136
13	1682	1601	1520	1440	1359	1279	1199	1159	1119
14	1657	1578	1497	1418	1339	1260	1180	1141	1102
15	1633	1554	1475	1397	1318	1240	1162	1123	1085
16	1608	1531	1453	1376	1298	1221	1144	1106	1068
17	1584	1508	1430	1354	1278	1202	1126	1088	1051
18	1559	1484	1408	1333	1257	1183	1108	1071	1034
19	1535	1461	1385	1311	1237	1163	1089	1053	1016
20	1510	1437	1363	1290	1217	1144	1071	1035	999
22	1461	1390	1318	1247	1176	1106	1035	1000	965
24	1412	1344	1273	1205	1135	1067	998	965	931
26	1364	1297	1228	1162	1095	1029	962	929	897
28	1315	1250	1183	1119	1054	990	926	894	863
30	1266	1203	1139	1076	1013	952	889	859	828
32	1217	1156	1094	1034	973	913	853	823	794
34	1168	1109	1049	991	932	875	816	788	760
36	1119	1062	1004	948	891	836	780	753	726
38	1070	1015	959	906	851	798	744	718	692
40	1021	969	914	863	810	759	707	682	658
Area, in. <sup>2</sup>	124.99	119.12	113.22	107.34	101.47	95.58	89.70	86.76	83.82
I <sub>1-1</sub> , in. <sup>4</sup>	6420.5	6010.5	5609.4	5221.4	4843.4	4475.9	4121.5	3948.1	3778.1
r <sub>1-1</sub> , in.	7.17	7.10	7.04	6.97	6.91	6.84	6.78	6.75	6.71
I <sub>2-2</sub> , in. <sup>4</sup>	2301.0	2168.2	2037.4	1909.1	1783.5	1659.9	1539.1	1479.4	1420.7
r <sub>2-2</sub> , in.	4.29	4.27	4.24	4.22	4.19	4.17	4.14	4.13	4.12
Weight Lbs. per Foot	425	405	385	365	345	325	305	295	285

Safe load values above are for ratios of l/r not over 120, for both main and secondary members.

## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of New York Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 146 14"x15"									
	275 lbs.	265 lbs.	255 lbs.	245 lbs.	235 lbs.	225 lbs.	215 lbs.	205 lbs.	195 lbs.	185 lbs.
1	1277	1231	1184	1138	1091	1045	998	952	905	859
2	1261	1215	1169	1123	1077	1031	985	939	893	848
3	1244	1199	1154	1108	1063	1017	972	927	881	836
4	1228	1183	1138	1093	1048	1004	959	914	869	825
5	1211	1167	1123	1079	1034	990	946	901	857	813
6	1195	1151	1107	1064	1020	976	933	889	845	802
7	1178	1135	1092	1049	1005	962	919	876	833	790
8	1161	1119	1076	1034	991	949	906	863	821	779
9	1145	1103	1061	1019	977	935	893	851	809	767
10	1128	1087	1045	1004	962	921	880	838	797	756
11	1112	1071	1030	989	948	907	867	826	785	744
12	1095	1055	1015	974	934	894	853	813	773	733
13	1079	1039	999	959	919	880	840	800	761	721
14	1062	1023	984	944	905	866	827	788	749	710
15	1045	1007	968	930	891	852	814	775	737	699
16	1029	991	953	915	876	839	801	762	725	687
17	1012	975	937	900	862	825	787	750	713	676
18	996	959	922	885	848	811	774	737	701	664
19	979	943	906	870	833	797	761	725	689	653
20	963	927	891	855	819	784	748	712	677	641
22	929	895	860	825	790	756	721	687	653	618
24	896	863	829	796	762	729	695	661	628	595
26	863	831	798	766	733	701	669	636	604	572
28	830	799	768	736	704	673	642	611	580	549
30	797	767	737	706	676	646	616	586	556	526
32	764	735	706	676	647	618	589	560	532	504
34	731	703	675	647	618	591	563	535	508	481
36	697	671	644	617	590	563	537	510	481	458
38	664	639	613	587	561	536	510	485	460	435
40	631	607	582	557	532	508	484	459	436	
Area, in. <sup>2</sup>	80.87	77.93	74.99	72.06	69.11	66.17	63.23	60.28	57.34	54.41
I <sub>1-1</sub> , in. <sup>4</sup>	3607.8	3442.4	3280.0	3119.6	2961.9	2806.2	2654.7	2505.0	2358.2	2213.5
r <sub>1-1</sub> , in.	6.68	6.65	6.61	6.58	6.55	6.51	6.48	6.45	6.41	6.38
I <sub>2-2</sub> , in. <sup>4</sup>	1362.0	1304.2	1247.1	1190.6	1134.5	1079.1	1024.5	970.3	916.8	863.9
r <sub>2-2</sub> , in.	4.10	4.09	4.08	4.06	4.05	4.04	4.03	4.01	4.00	3.98
Weight Lbs. per Foot	275	265	255	245	235	225	215	205	195	185

Safe load values above are for ratios of l/r not over 120, for both main and secondary members.

## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of New York Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot										
	CB 146 14"x15"										
	175 lbs.	165 lbs.	155 lbs.	145 lbs.	135 lbs.	131 lbs.	125 lbs.	115 lbs.	106 lbs.	96 lbs.	86 lbs.
1	813	766	720	673	627	608	580	534	492	446	399
2	802	756	710	664	618	599	572	527	485	439	393
3	791	745	700	655	610	591	564	519	479	433	388
4	780	735	690	646	601	582	556	512	472	427	382
5	769	725	681	637	593	573	548	505	465	421	377
6	758	715	671	628	584	565	541	497	458	415	371
7	747	704	661	618	576	556	533	490	452	409	366
8	736	694	652	609	567	548	525	483	445	403	360
9	726	684	642	600	559	539	517	475	438	396	355
10	715	673	632	591	550	530	509	468	431	390	349
11	704	663	622	582	542	522	501	461	424	384	344
12	693	653	613	573	533	513	493	453	418	378	338
13	682	643	603	564	524	505	485	446	411	372	333
14	671	632	593	555	516	496	477	439	404	366	327
15	660	622	584	546	507	488	469	432	397	360	322
16	649	612	574	536	499	479	461	424	391	353	316
17	638	601	564	527	490	470	453	417	384	347	310
18	627	591	554	518	482	462	446	410	377	341	305
19	617	581	545	509	473	453	438	402	370	335	299
20	606	570	535	500	465	445	430	395	364	329	294
22	584	550	515	482	448	428	414	380	350	317	283
24	562	529	496	464	431	410	398	366	336	304	272
26	540	509	477	445	414	393	382	351	323	292	261
28	519	488	457	427	397	376	366	337	309	280	250
30	497	468	438	409	380	359	351	322	296	267	239
32	475	447	418	391	363	342	335	307	282	255	228
34	453	426	399	372	346	325	319	293	269	243	216
36	431	406	379	354	329	307	303	278	255	231	205
38	410	385	360	336	312		287	264	242	218	194
Area, in. <sup>2</sup>	51.47	48.52	45.58	42.64	39.70	38.52	36.75	33.82	31.18	28.23	25.28
I <sub>1-1</sub> , in. <sup>4</sup>	2071.7	1932.6	1796.8	1662.7	1530.4	1358.4	1402.1	1275.9	1164.1	1042.1	923.0
r <sub>1-1</sub> , in.	6.34	6.31	6.28	6.24	6.21	5.94	6.18	6.14	6.11	6.08	6.04
I <sub>2-2</sub> , in. <sup>4</sup>	811.6	759.9	709.0	658.5	608.4	547.3	559.4	510.9	467.6	419.9	373.1
r <sub>2-2</sub> , in.	3.97	3.96	3.94	3.93	3.92	3.77	3.90	3.89	3.87	3.86	3.84
Weight Lbs. per Foot	175	165	155	145	135	131	125	115	106	96	86

Safe load values above are for ratios of  $l/r$  not over 120, for both main and secondary members.

## CARNEGIE BEAM SECTIONS—Continued

## 12-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of New York Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 124C 12"x12"				CB 124B 12"x12"			CB 123B 12"x9"		
	102 lbs.	95 lbs.	88 lbs.	82 lbs.	76 lbs.	70 lbs.	65 lbs.	66 lbs.	60 lbs.	55 lbs.
1	471	439	407	379	351	323	300	303	276	253
2	463	431	400	373	345	318	295	296	269	247
3	454	423	393	366	338	312	290	289	263	241
4	446	415	385	360	332	306	285	282	256	234
5	437	408	378	353	325	300	279	274	249	228
6	429	400	371	346	319	294	274	267	243	222
7	420	392	364	340	312	288	269	260	236	216
8	412	384	357	333	306	283	263	253	230	210
9	403	376	350	327	299	277	258	246	223	204
10	394	368	343	320	293	271	253	238	217	198
11	386	361	335	314	286	265	247	231	210	192
12	377	353	328	307	280	259	242	224	203	186
13	369	345	321	301	273	253	237	217	197	180
14	360	337	314	294	267	248	232	210	190	174
15	352	329	307	287	260	242	226	202	184	168
16	343	321	300	281	254	236	221	195	177	162
17	335	313	293	274	248	230	216	188	170	156
18	326	306	285	268	241	224	210	181	164	150
19	318	298	278	261	235	219	205	173	157	144
20	309	290	271	255	228	213	200	166	151	137
22	292	274	257	242	215	201	189	152	137	125
24	275	259	242	228	202	189	179			
26	258	243	228	215	189	178	168			
28	241	227	214	202	176	166	157			
30			200	189			147			
Area, in. <sup>2</sup>	29.99	27.93	25.88	24.11	22.35	20.58	19.11	19.41	17.65	16.17
I <sub>1-1</sub> , in. <sup>4</sup>	721.4	696.6	672.0	650.8	560.2	539.0	521.3	525.7	472.0	428.4
r <sub>1-1</sub> , in.	4.90	4.99	5.10	5.20	5.01	5.12	5.22	5.20	5.17	5.15
I <sub>2-2</sub> , in. <sup>4</sup>	260.6	249.7	239.2	230.5	187.5	180.7	175.2	99.1	89.0	80.9
r <sub>2-2</sub> , in.	2.95	2.99	3.04	3.09	2.90	2.96	3.03	2.26	2.25	2.24
Weight Lbs. per Foot	102	95	88	82	76	70	65	66	60	55

Safe load values above are for ratios of  $l/r$  not over 120, for both main and secondary members.



## CARNEGIE BEAM SECTIONS—Continued

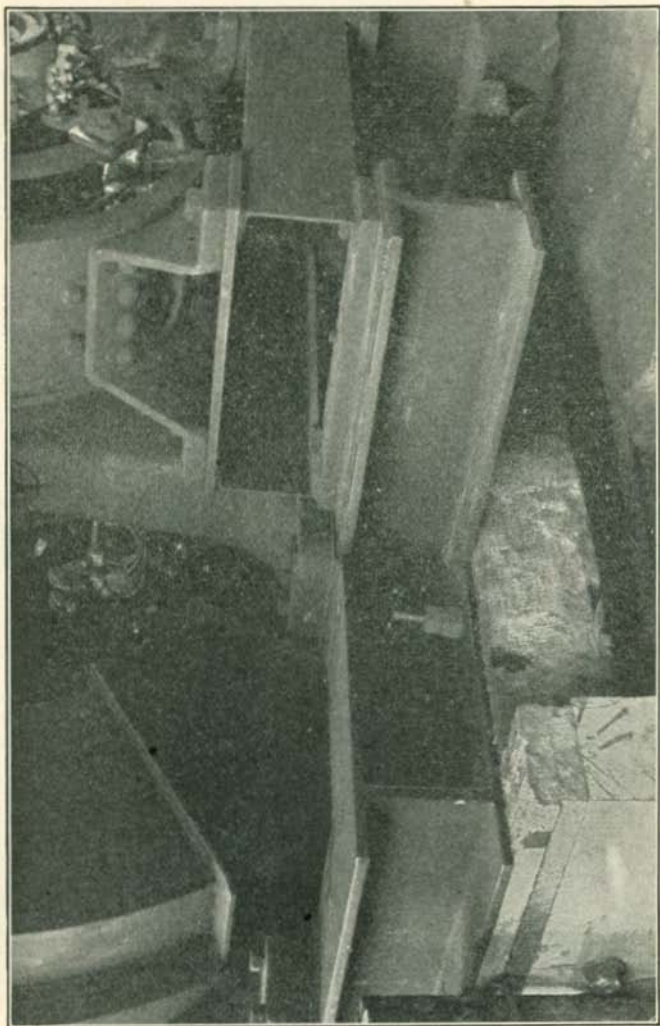
## 10 AND 6-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of New York Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 103A 10"x10"				CB 61 6"x9½"					
	64 lbs.	59 lbs.	54 lbs.	49 lbs.	88 lbs.	80 lbs.	70 lbs.	60 lbs.	50 lbs.	40 lbs.
1	294	271	249	226	406	369	323	276	230	184
2	288	265	243	221	397	361	316	270	225	180
3	281	259	238	216	389	353	309	264	220	176
4	274	253	232	211	381	346	302	259	215	172
5	268	247	227	207	372	338	295	253	210	168
6	261	241	222	202	364	330	289	247	205	164
7	254	235	216	197	355	323	282	241	200	160
8	248	229	211	192	347	315	275	235	195	156
9	241	223	206	188	339	307	268	229	190	152
10	235	217	200	183	330	300	261	223	185	148
11	228	211	195	178	322	292	255	217	180	143
12	221	205	189	173	314	284	248	211	175	139
13	215	199	184	168	305	277	241	205	170	135
14	208	193	179	164	297	269	234	200	165	131
15	201	187	173	159	289	261	227	194	160	127
16	195	181	168	154	280	254	221	188	155	123
17	188	175	163	149	272	246	214	182	150	119
18	181	169	157	145	264	238	207	176	145	115
19	175	163	152	140	255	231	200	170	140	111
20	168	157	146	135	247	223	193	164	135	107
21	162	151	141	130	239	215	187	158	130	103
22	155	145	136	126	230	208	180	152	125	99
23					222	200	173	146	120	95
24					214	192	166	141	116	91
25					205	184	159	135		
26					197					
Area, in. <sup>2</sup>	18.81	17.34	15.87	14.40	25.87	23.52	20.58	17.63	14.70	11.76
I <sub>1-1</sub> , in. <sup>4</sup>	308.8	296.5	284.3	272.0	187.3	164.9	138.7	113.9	91.0	69.6
r <sub>1-1</sub> , in.	4.05	4.13	4.23	4.35	2.69	2.65	2.60	2.54	2.49	2.43
I <sub>2-2</sub> , in. <sup>4</sup>	106.3	101.7	97.3	93.0	175.4	156.3	133.3	111.1	90.1	69.9
r <sub>2-2</sub> , in.	2.38	2.42	2.48	2.54	2.60	2.58	2.54	2.51	2.48	2.44
Weight Lbs. per Foot	64	59	54	49	88	80	70	60	50	40

Safe load values above are for ratios of l/r not over 120, for both main and secondary members.



CARNEGIE BEAM SECTIONS WELDED TOGETHER AND ADAPTED TO MACHINERY SUPPORT

## CARNEGIE BEAM SECTIONS—Continued

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of Chicago Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot								
	CB 146 14"x15"								
	425 lbs.	405 lbs.	385 lbs.	365 lbs.	345 lbs.	325 lbs.	305 lbs.	295 lbs.	285 lbs.
6	1750	1668	1587	1503	1421	1338	1256	1215	1173
7	1750	1668	1587	1503	1421	1338	1256	1215	1173
8	1750	1668	1587	1503	1421	1338	1256	1215	1173
9	1750	1668	1587	1503	1421	1338	1256	1215	1173
10	1750	1668	1587	1503	1420	1337	1253	1212	1170
11	1731	1648	1565	1482	1400	1317	1235	1194	1153
12	1706	1625	1542	1461	1379	1298	1217	1176	1136
13	1682	1601	1520	1440	1359	1279	1199	1159	1119
14	1657	1578	1497	1418	1339	1260	1180	1141	1102
15	1633	1554	1475	1397	1318	1240	1162	1123	1085
16	1608	1531	1453	1376	1298	1221	1144	1106	1068
17	1584	1508	1430	1354	1278	1202	1126	1088	1051
18	1559	1484	1408	1333	1257	1183	1108	1071	1034
19	1535	1461	1385	1311	1237	1163	1089	1053	1016
20	1510	1437	1363	1290	1217	1144	1071	1035	999
22	1461	1390	1318	1247	1176	1106	1035	1000	965
24	1412	1344	1273	1205	1135	1067	998	965	931
26	1364	1297	1228	1162	1095	1029	962	929	897
28	1315	1250	1183	1119	1054	990	926	894	863
30	1266	1203	1139	1076	1013	952	889	859	828
32	1217	1156	1094	1034	973	913	853	823	794
34	1168	1109	1049	991	932	875	816	788	760
36	1119	1062	1004	948	891	836	780	753	726
38	1070	1015	959	906	851	798	744	718	692
40	1021	969	914	863	810	759	707	682	658
42	972	922	869	820	769	721	671	647	623
44	923	875	825	777	728	682	634	612	589
46	874	828	780	735	688	644	598	576	555
48	825	781	735	692	647	605	562	541	521
50	776	734	690	649	606	567	525	506	487
Area, in. <sup>2</sup>	124.99	119.12	113.22	107.34	101.47	95.58	89.70	86.76	83.82
I <sub>1-1</sub> , in. <sup>4</sup>	6420.5	6010.5	5609.4	5221.4	4843.4	4475.9	4121.5	3948.1	3778.1
r <sub>1-1</sub> , in.	7.17	7.10	7.04	6.97	6.91	6.84	6.78	6.75	6.71
I <sub>2-2</sub> , in. <sup>4</sup>	2301.0	2168.2	2037.4	1909.1	1783.5	1659.9	1539.1	1479.4	1420.7
r <sub>2-2</sub> , in.	4.29	4.27	4.24	4.22	4.19	4.17	4.14	4.13	4.12
Weight Lbs. per Foot	425	405	385	365	345	325	305	295	285

Safe loads above upper zig-zag line represent values not exceeding 14,000 pounds per square inch.

Values above lower zig-zag line represent ratios of  $l/r$  not exceeding 120.Values below lower zig-zag line represent ratios of  $l/r$  not exceeding 150.

\*CARNEGIE BEAM SECTIONS—Continued

14-INCH COLUMNS

ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of Chicago Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 146 14"x15"									
	275 lbs.	265 lbs.	255 lbs.	245 lbs.	235 lbs.	225 lbs.	215 lbs.	205 lbs.	195 lbs.	185 lbs.
6	1132	1091	1050	1009	968	926	885	844	803	762
7	1132	1091	1050	1009	968	926	885	844	803	762
8	1132	1091	1050	1009	968	926	885	844	803	762
9	1132	1091	1050	1009	968	926	885	844	803	762
10	1128	1087	1045	1004	962	921	880	838	797	756
11	1112	1071	1030	989	948	907	867	826	785	744
12	1095	1055	1015	974	934	894	853	813	773	733
13	1079	1039	999	959	919	880	840	800	761	721
14	1062	1023	984	944	905	866	827	788	749	710
15	1045	1007	968	930	891	852	814	775	737	699
16	1029	991	953	915	876	839	801	762	725	687
17	1012	975	937	900	862	825	787	750	713	676
18	996	959	922	885	848	811	774	737	701	664
19	979	943	906	870	833	797	761	725	689	653
20	963	927	891	855	819	784	748	712	677	641
22	929	895	860	825	790	756	721	687	653	618
24	896	863	829	796	762	729	695	661	628	595
26	863	831	798	766	733	701	669	636	604	572
28	830	799	768	736	704	673	642	611	580	549
30	797	767	737	706	676	646	616	586	556	526
32	764	735	706	676	647	618	589	560	532	504
34	731	703	675	647	618	591	563	535	508	481
36	697	671	644	617	590	563	537	510	481	458
38	664	639	613	587	561	536	510	485	460	435
40	631	607	582	557	532	508	484	459	436	412
42	598	575	551	528	504	481	457	434	412	389
44	565	543	521	498	475	453	431	409	388	366
46	532	511	490	468	446	426	405	384	364	343
48	499	479	459	438	418	398	378	358	339	320
50	465	447	428	408	389	371	352	333	315	
Area, in. <sup>2</sup>	80.87	77.93	74.99	72.06	69.11	66.17	63.23	60.28	57.34	54.41
I <sub>1-1</sub> , in. <sup>4</sup>	3607.8	3442.4	3280.0	3119.6	2961.9	2806.2	2654.7	2505.0	2358.2	2213.5
r <sub>1-1</sub> , in.	6.68	6.65	6.61	6.58	6.55	6.51	6.48	6.45	6.41	6.38
I <sub>2-2</sub> , in. <sup>4</sup>	1362.0	1304.2	1247.1	1190.6	1134.5	1079.1	1024.5	970.3	916.8	863.9
r <sub>2-2</sub> , in.	4.10	4.09	4.08	4.06	4.05	4.04	4.03	4.01	4.00	3.98
Weight Lbs. per Foot	275	265	255	245	235	225	215	205	195	185

Safe loads above upper zig-zag line represent values not exceeding 14,000 pounds per square inch.  
 Values above lower zig-zag line represent ratios of l/r not exceeding 120.  
 Values below lower zig-zag line represent ratios of l/r not exceeding 150.



## CARNEGIE BEAM SECTIONS—Continued \*

## 14-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

Unit Stress—City of Chicago Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot										
	CB 146 14"x15"										
	175 lbs.	165 lbs.	155 lbs.	145 lbs.	135 lbs.	131 lbs.	125 lbs.	115 lbs.	106 lbs.	96 lbs.	86 lbs.
6	721	679	638	597	556	539	515	473	437	395	354
7	721	679	638	597	556	539	515	473	437	395	354
8	721	679	638	597	556	539	515	473	437	395	354
9	721	679	638	597	556	539	515	473	437	395	354
10	715	673	632	591	550	530	509	468	431	390	349
11	704	663	622	582	542	522	501	461	424	384	344
12	693	653	613	573	533	513	493	453	418	378	338
13	682	643	603	564	524	505	485	446	411	372	333
14	671	632	593	555	516	496	477	439	404	366	327
15	660	622	584	546	507	488	469	432	397	360	322
16	649	612	574	536	499	479	461	424	391	353	316
17	638	601	564	527	490	470	453	417	384	347	310
18	627	591	554	518	482	462	446	410	377	341	305
19	617	581	545	509	473	453	438	402	370	335	299
20	606	570	535	500	465	445	430	395	364	329	294
22	584	550	515	482	448	428	414	380	350	317	283
24	562	529	496	464	431	410	398	366	336	304	272
26	540	509	477	445	414	393	382	351	323	292	261
28	519	488	457	427	397	376	366	337	309	280	250
30	497	468	438	409	380	359	351	322	296	267	239
32	475	447	418	391	363	342	335	307	282	255	228
34	453	426	399	372	346	325	319	293	269	243	216
36	431	406	379	354	329	307	303	278	255	231	205
38	410	385	360	336	312	290	287	264	242	218	194
40	388	365	341	318	294	270	271	249	228	206	183
42	366	344	321	299	277	256	256	234	215	194	172
44	344	323	302	281	260	239	240	220	201	181	161
46	323	303	282	263	243	222	224	205	188	169	150
48	301	282	263	245	226		208	191	174	157	139
Area, in. <sup>2</sup>	51.47	48.52	45.58	42.64	39.70	38.52	36.75	33.82	31.18	28.23	25.28
I <sub>1-1</sub> , in. <sup>4</sup>	2071.7	1932.6	1796.8	1662.7	1530.4	1358.4	1402.1	1275.9	1164.1	1042.1	923.0
r <sub>1-1</sub> , in.	6.34	6.31	6.28	6.24	6.21	5.94	6.18	6.14	6.11	6.08	6.04
I <sub>2-2</sub> , in. <sup>4</sup>	811.6	759.9	709.0	658.5	608.4	547.3	559.4	510.9	467.6	419.9	373.1
r <sub>2-2</sub> , in.	3.97	3.96	3.94	3.93	3.92	3.77	3.90	3.89	3.87	3.86	3.84
Weight Lbs. per Foot	175	165	155	145	135	131	125	115	106	96	86

Safe loads above upper zig-zag line represent values not exceeding 14,000 pounds per square inch.

Values above lower zig-zag line represent ratios of  $l/r$  not exceeding 120.Values below lower zig-zag line represent ratios of  $l/r$  not exceeding 150.

## CARNEGIE BEAM SECTIONS—Continued

## 12-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

## Unit Stress—City of Chicago Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 124C 12"x12"				CB 124B 12"x12"			CB 123B 12"x9"		
	102 lbs.	95 lbs.	88 lbs.	82 lbs.	76 lbs.	70 lbs.	65 lbs.	66 lbs.	60 lbs.	55 lbs.
5	420	391	362	338	313	288	268	272	247	226
6	420	391	362	338	313	288	268	267	243	222
7	420	391	362	338	312	288	268	260	236	216
8	412	384	357	333	306	283	263	253	230	210
9	403	376	350	327	299	277	258	246	223	204
10	394	368	343	320	293	271	253	238	217	198
11	386	361	335	314	286	265	247	231	210	192
12	377	353	328	307	280	259	242	224	203	186
13	369	345	321	301	273	253	237	217	197	180
14	360	337	314	294	267	248	232	210	190	174
15	352	329	307	287	260	242	226	202	184	168
16	343	321	300	281	254	236	221	195	177	162
17	335	313	293	274	248	230	216	188	170	156
18	326	306	285	268	241	224	210	181	164	150
19	318	298	278	261	235	219	205	173	157	144
20	309	290	271	255	228	213	200	166	151	137
22	292	274	257	242	215	201	189	152	137	125
24	275	259	242	228	202	189	179	137	124	113
26	258	243	228	215	189	178	168	123	111	102
28	241	227	214	202	176	166	157	109	98	89
30	224	211	200	189	163	154	147			
32	207	196	185	176	150	143	136			
34	189	180	171	163	137	131	126			
36	172	164	157	150	125	119	115			
38			142	137						
Area, in. <sup>2</sup>	29.99	27.93	25.88	24.11	22.35	20.58	19.11	19.41	17.65	16.17
I <sub>1-1</sub> , in. <sup>4</sup>	721.4	696.6	672.0	650.8	560.2	539.0	521.3	525.7	472.0	428.4
r <sub>1-1</sub> , in.	4.90	4.99	5.10	5.20	5.01	5.12	5.22	5.20	5.17	5.15
I <sub>2-2</sub> , in. <sup>4</sup>	260.6	249.7	239.2	230.5	187.5	180.7	175.2	99.1	89.0	80.9
r <sub>2-2</sub> , in.	2.95	2.99	3.04	3.09	2.90	2.96	3.03	2.26	2.25	2.24
Weight Lbs. per Foot	102	95	88	82	76	70	65	66	60	55

Safe loads above upper zig-zag line represent values not exceeding 14,000 pounds per square inch.

Values above lower zig-zag line represent ratios of  $l/r$  not exceeding 120.Values below lower zig-zag line represent ratios of  $l/r$  not exceeding 150.

## CARNEGIE BEAM SECTIONS—Concluded

## 10 AND 6-INCH COLUMNS

## ALLOWABLE CONCENTRIC LOADS IN THOUSANDS OF POUNDS

## Unit Stress—City of Chicago Code

Effective Length in Feet	Nominal Depth and Flange Width—Weight per Foot									
	CB 103A 10"x10"				CB 61 6"x9½"					
	64 lbs.	59 lbs.	54 lbs.	49 lbs.	88 lbs.	80 lbs.	70 lbs.	60 lbs.	50 lbs.	40 lbs.
1	263	243	222	202	362	329	288	247	206	165
2	263	243	222	202	362	329	288	247	206	165
3	263	243	222	202	362	329	288	247	206	165
4	263	243	222	202	362	329	288	247	206	165
5	263	243	222	202	362	329	288	247	206	165
6	261	241	222	202	362	329	288	247	205	164
7	254	235	216	197	355	323	282	241	200	160
8	248	229	211	192	347	315	275	235	195	156
9	241	223	206	188	339	307	268	229	190	152
10	235	217	200	183	330	300	261	223	185	148
11	228	211	195	178	322	292	255	217	180	143
12	221	205	189	173	314	284	248	211	175	139
13	215	199	184	168	305	277	241	205	170	135
14	208	193	179	164	297	269	234	200	165	131
15	201	187	173	159	289	261	227	194	160	127
16	195	181	168	154	280	254	221	188	155	123
17	188	175	163	149	272	246	214	182	150	119
18	181	169	157	145	264	238	207	176	145	115
19	175	163	152	140	255	231	200	170	140	111
20	168	157	146	135	247	223	193	164	135	107
21	162	151	141	130	239	215	187	158	130	103
22	155	145	136	126	230	208	180	152	125	99
23	148	139	130	121	222	200	173	146	120	95
24	142	133	125	116	214	192	166	141	116	91
25	135	127	120	111	205	184	159	135	111	87
26	128	121	114	107	197	177	153	129	106	83
27	122	115	109	102	189	169	146	123	101	79
28	115	109	103	97	180	162	139	117	96	74
29		103	98	92	172	154	132	111	91	70
30		97	93	88	164	146	125	105	86	66
31					155	139	119	99	81	
32					147	131				
Area, in. <sup>2</sup>	18.81	17.34	15.87	14.40	25.87	23.52	20.58	17.63	14.70	11.76
I <sub>1-1</sub> , in. <sup>4</sup>	308.8	296.5	284.3	272.0	187.3	164.9	138.7	113.9	91.0	69.6
r <sub>1-1</sub> , in.	4.05	4.13	4.23	4.35	2.69	2.65	2.60	2.54	2.49	2.43
I <sub>2-2</sub> , in. <sup>4</sup>	106.3	101.7	97.3	93.0	175.4	156.3	133.3	111.1	90.1	69.9
r <sub>2-2</sub> , in.	2.38	2.42	2.48	2.54	2.60	2.58	2.54	2.51	2.48	2.44
Weight Lbs. per Foot	64	59	54	49	88	80	70	60	50	40

Safe loads above upper zig-zag line represent values not exceeding 14,000 pounds per square inch.

Values above lower zig-zag line represent ratios of l/r not exceeding 120.

Values below lower zig-zag line represent ratios of l/r not exceeding 150.



# CARNEGIE STEEL COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

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**Boston**, Statler Office Building, 20 Providence Street,  
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**Chicago**, 208 South La Salle Street,  
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**New Orleans**, Maison Blanche, 921 Canal Street,  
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