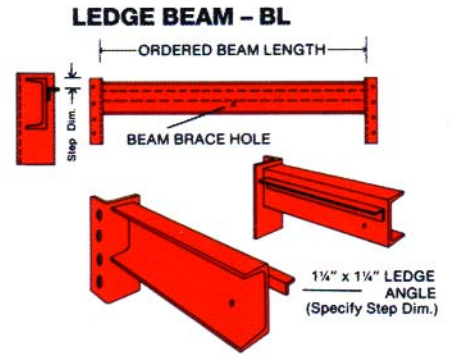
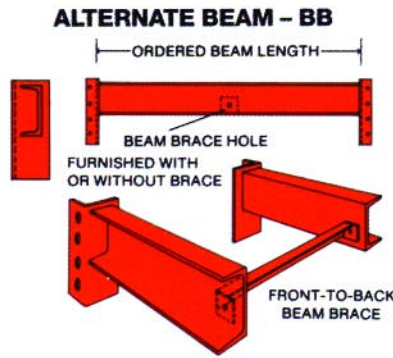
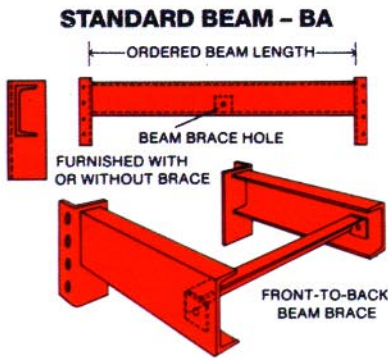


STRUCTURAL STEEL STORAGE RACK

Structural Beam Types



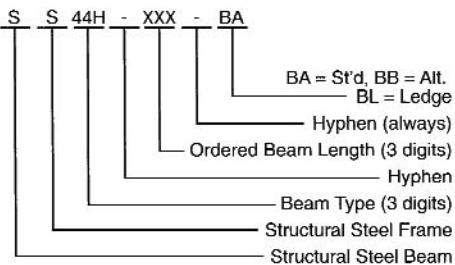
Structural Steel Beam Capacities

NOTES:

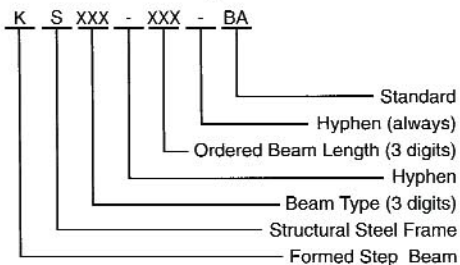
- 1) Capacities are based on the 2nd edition of the AISC-LRFD Manual and the 1997 RMI. Loads below the heavy line are limited by L/180 deflection.
- 2) Capacities are for a pair of beams uniformly loaded with 2 pallets, and include impact and dead load provisions.
- 3) Capacities include partial end fixity and are valid only when used in Selective rack. No seismic loads are considered.
- 4) Shaded capacities limited to 14,000 lbs. per pair when using roll-formed rack.
- 5) Braced beam capacities are based on the use of a standard center beam tie. The beam brace may be omitted on 3" and 4" beams where bolted pallet supports are used.
- 6) For other load conditions or capacities not listed, contact Engineering.

LENGTH	33 H		34 H		44 H		45 H		56 J		68 J	
	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL
48	11,340	0.18	12,820	0.18	17,180	0.13	20,000	0.12	20,000	0.06	20,000	0.04
54	10,150	0.22	11,470	0.23	15,340	0.17	19,480	0.17	20,000	0.09	20,000	0.05
60	9,190	0.27	10,380	0.28	13,870	0.21	17,590	0.21	19,420	0.12	20,000	0.07
66	8,410	0.33	9,490	0.34	12,660	0.25	16,050	0.26	17,690	0.15	20,000	0.10
72	7,760	0.39	8,670	0.40	11,660	0.30	14,760	0.30	16,260	0.18	20,000	0.12
78	6,770	0.43	7,440	0.43	10,810	0.35	13,680	0.36	15,040	0.21	20,000	0.16
84	5,880	0.47	6,460	0.47	10,080	0.40	12,740	0.41	14,000	0.24	20,000	0.20
90	5,160	0.50	5,660	0.50	9,450	0.46	11,930	0.47	13,100	0.27	18,930	0.23
92	4,950	0.51	5,430	0.51	9,250	0.48	11,690	0.50	12,820	0.29	18,530	0.24
94	4,750	0.52	5,220	0.52	9,070	0.50	11,450	0.52	12,560	0.30	18,150	0.25
96	4,570	0.53	5,010	0.53	8,890	0.53	11,090	0.53	12,310	0.31	17,780	0.26
98	4,400	0.54	4,820	0.54	8,660	0.54	10,660	0.54	12,060	0.32	17,420	0.27
100	4,230	0.56	4,640	0.56	8,330	0.56	10,250	0.56	11,830	0.34	17,080	0.28
102	4,080	0.57	4,470	0.57	8,020	0.57	9,860	0.57	11,610	0.35	16,760	0.29
104	3,930	0.58	4,310	0.58	7,730	0.58	9,500	0.58	11,390	0.37	16,440	0.31
106	3,790	0.59	4,160	0.59	7,450	0.59	9,160	0.59	11,190	0.38	16,140	0.32
108	3,660	0.60	4,010	0.60	7,190	0.60	8,830	0.60	10,990	0.39	15,850	0.33
114	3,310	0.63	3,630	0.63	6,490	0.63	7,960	0.63	10,430	0.44	15,040	0.37
120	3,010	0.67	3,290	0.67	5,880	0.67	7,210	0.67	9,940	0.49	14,310	0.41
126	2,750	0.70	3,010	0.70	5,360	0.70	6,570	0.70	9,480	0.54	13,650	0.45
132	2,520	0.73	2,760	0.73	4,910	0.73	6,010	0.73	9,070	0.59	13,050	0.49
138	2,320	0.77	2,540	0.77	4,510	0.77	5,520	0.77	8,700	0.64	12,500	0.54
144	2,150	0.80	2,350	0.80	4,170	0.80	5,090	0.80	8,350	0.70	12,000	0.59
150	1,990	0.83	2,170	0.83	3,860	0.83	4,710	0.83	8,040	0.76	11,540	0.64
156	1,850	0.87	2,020	0.87	3,580	0.87	4,370	0.87	7,740	0.82	11,110	0.69
162	1,730	0.90	1,890	0.90	3,340	0.90	4,070	0.90	7,470	0.88	10,720	0.74
168	1,620	0.93	1,770	0.94	3,120	0.93	3,800	0.93	7,100	0.93	10,350	0.80
174	1,520	0.97	1,660	0.97	2,920	0.97	3,550	0.97	6,640	0.97	10,010	0.85
180	1,430	1.00	1,560	1.00	2,740	1.00	3,330	1.00	6,220	1.00	9,550	0.90

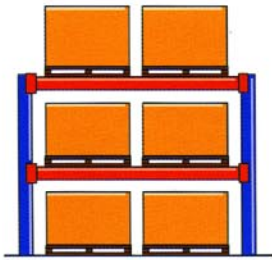
Structural Beam Number



Formed Step Beam Number







LENGTH	33 H		34 H		44 H		45 H		56 J		68 J	
	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL
48	11,340	0.18	12,820	0.18	16,970	0.13	20,000	0.12	20,000	0.06	20,000	0.04
54	9,960	0.22	11,250	0.22	14,690	0.16	18,570	0.16	20,000	0.09	20,000	0.05
60	8,780	0.26	9,920	0.27	12,860	0.19	16,220	0.20	19,200	0.12	20,000	0.07
66	7,810	0.31	8,830	0.32	11,360	0.22	14,280	0.23	17,050	0.14	20,000	0.10
72	7,010	0.36	7,910	0.36	10,110	0.26	12,670	0.26	15,250	0.16	20,000	0.12
78	6,320	0.40	7,130	0.42	9,050	0.29	11,300	0.30	13,730	0.19	19,740	0.16
84	5,730	0.45	6,460	0.47	8,130	0.33	10,120	0.33	12,420	0.21	17,810	0.18
90	5,160	0.50	5,660	0.50	7,330	0.36	9,100	0.36	11,290	0.24	16,130	0.20
92	4,950	0.51	5,430	0.51	7,090	0.37	8,780	0.37	10,940	0.24	15,620	0.20
94	4,750	0.52	5,220	0.52	6,860	0.38	8,490	0.38	10,610	0.25	15,140	0.21
96	4,570	0.53	5,010	0.53	6,640	0.39	8,200	0.39	10,290	0.26	14,670	0.22
98	4,400	0.54	4,820	0.54	6,420	0.40	7,920	0.40	9,990	0.27	14,220	0.22
100	4,230	0.56	4,640	0.56	6,210	0.41	7,660	0.42	9,700	0.28	13,790	0.23
102	4,080	0.57	4,470	0.57	6,020	0.43	7,400	0.43	9,410	0.29	13,370	0.24
104	3,930	0.58	4,310	0.58	5,820	0.43	7,160	0.44	9,140	0.29	12,970	0.24
106	3,790	0.59	4,160	0.59	5,640	0.45	6,920	0.44	8,880	0.30	12,590	0.25
108	3,660	0.60	4,010	0.60	5,460	0.46	6,690	0.45	8,630	0.31	12,220	0.25
114	3,310	0.63	3,630	0.63	4,970	0.49	6,060	0.48	7,930	0.33	11,180	0.27
120	3,010	0.67	3,290	0.67	4,520	0.51	5,480	0.51	7,300	0.36	10,250	0.29
126							4,960	0.53	6,720	0.38	9,410	0.31
132							4,480	0.55	6,200	0.40	8,640	0.33
138							4,040	0.56	5,720	0.42	7,930	0.34
144							3,640	0.57	5,280	0.44	7,290	0.36



Selecting Beams and Capacities

Assuming the use of very common flush type pallets, calculations can be made as follows: Multiply the maximum load width (in inches) times the number of loads between uprights. Add to this 3" to 4" for spacing between each load and uprights. This total is the beam span. For capacity required, multiply the maximum load weight (include pallet) times number of loads per pair of beams. This total is your capacity requirement per pair of beams. Use the chart to find the beams that meet or exceed your span and capacity requirements.

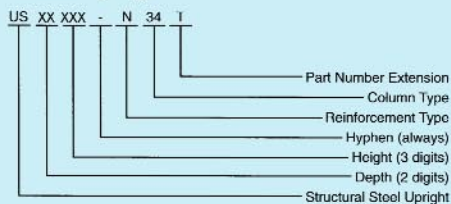
Structural Upright Frame Capacities

SPACING	33	34	44	45
	 3'	 3'	 4'	 4'
36	33,500	38,100	43,500	56,500
48	33,500	38,100	43,500	56,500
54	33,500	38,100	43,500	56,500
60	33,000	36,500	43,500	56,500
66	29,700	32,700	43,500	56,500
72	26,400	28,900	43,400	54,100
78	23,300	25,300	40,200	50,200
84	20,300	21,900	36,900	46,300
90	17,600	18,900	33,700	42,400
96	15,400	16,600	30,600	38,600


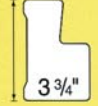
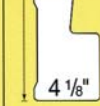
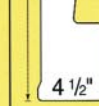

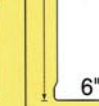
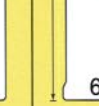
NOTES:

- 1) Capacities are based on the 2nd edition of the AISI-LRFD Manual, and the 1997 RMI. Capacities are not valid for seismic applications.
- 2) Spacing is based on the distance from the floor to the first beam level. Capacities are also valid for the distance between beams by adding 3" to the actual spacing. Upper level spacing may control design.
- 3) Capacities are based on the use of racks on a concrete floor slab, with anchors as determined in accordance with Engineering Bulletin #6.
- 4) For frame depths less than 36" contact Engineering for bracing, anchorage, and base plate check.
- 5) For seismic loads, other special applications or loading conditions, or double column capacities contact Engineering.

Upright Frame Number



BEAM CAPACITY CHART (Pounds per pair, uniformly distributed load)

LENGTH	 3 1/4"		 3 3/4"		 4 1/8"		 4 1/2"		 5 1/4"		 6"		 6"	
	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL	CAP'Y	DEFL
48	6,960	0.16	8,620	0.14	9,970	0.13	11,390	0.12	14,480	0.10	17,890	0.09	20,000	0.09
54	6,230	0.21	7,720	0.18	8,920	0.16	10,190	0.15	12,950	0.13	16,000	0.12	18,880	0.12
60	5,640	0.25	6,990	0.22	8,070	0.20	9,230	0.19	11,730	0.16	14,490	0.14	17,100	0.14
66	5,160	0.31	6,390	0.27	7,390	0.25	8,440	0.23	10,730	0.20	13,260	0.19	15,640	0.17
72	4,760	0.36	5,900	0.32	6,810	0.29	7,790	0.27	9,900	0.23	12,230	0.21	14,420	0.21
78	4,420	0.43	5,470	0.37	6,330	0.34	7,230	0.31	9,190	0.27	11,350	0.24	13,400	0.24
84	3,910	0.47	5,110	0.43	5,910	0.40	6,760	0.37	8,590	0.32	10,610	0.28	12,510	0.28
90	3,430	0.50	4,800	0.50	5,550	0.45	6,340	0.42	8,060	0.36	9,960	0.32	11,750	0.32
92	3,290	0.51	4,650	0.51	5,440	0.47	6,220	0.44	7,900	0.38	9,760	0.33	11,520	0.34
94	3,160	0.52	4,460	0.52	5,330	0.49	6,100	0.46	7,750	0.39	9,570	0.35	11,290	0.35
96	3,040	0.53	4,290	0.53	5,230	0.52	6,000	0.48	7,600	0.41	9,390	0.36	11,080	0.37
98	2,920	0.54	4,130	0.54	5,140	0.54	5,870	0.50	7,460	0.43	9,220	0.38	10,870	0.38
100	2,810	0.56	3,970	0.56	5,010	0.56	5,760	0.51	7,330	0.45	9,050	0.39	10,680	0.40
102	2,710	0.57	3,830	0.57	4,830	0.57	5,660	0.54	7,200	0.46	8,890	0.41	10,490	0.41
104	2,610	0.58	3,690	0.58	4,660	0.58	5,560	0.56	7,070	0.48	8,740	0.43	10,310	0.43
106	2,520	0.59	3,560	0.59	4,490	0.59	5,470	0.58	6,950	0.50	8,590	0.44	10,130	0.45
108	2,430	0.60	3,440	0.60	4,340	0.60	5,380	0.60	6,840	0.52	8,440	0.46	9,960	0.46
114	2,200	0.63	3,110	0.63	3,920	0.63	4,860	0.63	6,510	0.58	8,040	0.51	9,490	0.51
120	2,000	0.67	2,820	0.67	3,560	0.67	4,420	0.67	6,220	0.64	7,680	0.56	9,070	0.57
126	1,820	0.70	2,580	0.70	3,250	0.70	4,030	0.70	5,920	0.70	7,360	0.62	8,680	0.63
132	1,670	0.73	2,360	0.73	3,000	0.73	3,700	0.73	5,430	0.73	7,060	0.68	8,330	0.69
138	1,540	0.77	2,180	0.77	2,750	0.77	3,410	0.77	5,000	0.77	6,790	0.74	8,010	0.75
144	1,430	0.80	2,010	0.80	2,540	0.80	3,150	0.80	4,620	0.80	6,480	0.80	7,580	0.80
150	1,320	0.83	1,870	0.83	2,360	0.83	2,920	0.83	4,290	0.83	6,010	0.83	7,030	0.83
156	1,230	0.87	1,740	0.87	2,190	0.87	2,720	0.87	4,000	0.87	5,590	0.87	6,540	0.87
162	1,150	0.90	1,620	0.90	2,050	0.90	2,540	0.90	3,720	0.90	5,220	0.90	6,100	0.90
168	1,070	0.93	1,520	0.93	1,920	0.93	2,370	0.93	3,490	0.93	4,880	0.93	5,710	0.93
174	1,010	0.97	1,420	0.96	1,800	0.97	2,230	0.97	3,270	0.97	4,580	0.97	5,360	0.97
180	950	1.00	1,340	1.00	1,690	1.00	2,090	1.00	3,070	1.00	4,310	1.00	5,040	1.00

Notes:

- 1) Capacities are based on the 1996 AISI and the 1997 RMI Specifications. Values below the heavy line are limited by a deflection of L/180.
- 2) Capacities include partial end fixity, and are valid only when used in Selective rack.
- 3) Capacities are not valid for seismic conditions - contact Engineering for design requirements.
- 4) **Capacities include dead load and impact provisions**, and are based on a uniform load of two pallets on a pair of beams. Contact Engineering for other load conditions.
- 5) Deflection shown is approximate and will vary under actual loading conditions.
- 6) For beams longer than 96", where ledge loading exists, use a "lock-in crossbar" to limit beam twist.