

**TABLE OF REQUIRED BEAM SIZES, DESIGN DATA AND STEEL QUANTITIES**

SPAN (ft)	ROLLED BEAM				OPTIONAL PLATE GIRDER						Diaphragm Spaces "N" (ea)	Stud Spacing "X" (in)	Elastomeric Bearing Type	Estimated Quantities	
	Beam Member	Dimension "Y" (in)	Deflection "A" (feet)		Plate Sizes (inches)			Dimension "Y" (in)	Deflection "A" (feet)					Structural Steel (lbs)	PL Girder (1)
		Slab DL	Total DL	Top Flange	Botm Flange	Web		Slab DL	Total DL						
30	W18 x 130	29.25	0.014	0.018	1 x 12	1 1/4 x 12	1/2 x 17	29.25	0.014	0.017	2	9	SB - 1	22,370	21,140
	W21 x 111	31.51	0.013	0.016	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.014	0.018	2	9	SB - 1	20,630	19,820
	W24 x 104	34.06	0.011	0.014	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.011	0.014	2	9	SB - 1	19,640	19,900
	W27 x 146	37.38	0.006	0.008	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.006	0.008	2	10.5	SB - 2	25,940	23,370
	W30 x 173	40.44	0.004	0.006	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.004	0.006	2	12	SB - 3	30,040	28,970
	W33 x 118	42.86	0.005	0.006	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.005	0.006	2	12	SB - 1	22,460	22,240
	W36 x 135	45.55	0.005	0.006	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.005	0.006	2	12	SB - 1	25,020	23,690
W40 x 149	48.20	0.004	0.005	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.004	0.005	2	12	SB - 1	27,240	25,230	
35	W18 x 130	29.25	0.026	0.033	1 x 12	1 1/4 x 12	1/2 x 17	29.25	0.027	0.032	2	9	SB - 1	25,680	24,210
	W21 x 111	31.51	0.024	0.030	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.026	0.032	2	9	SB - 1	23,470	22,500
	W24 x 104	34.06	0.021	0.026	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.021	0.026	2	9	SB - 1	22,300	22,570
	W27 x 146	37.38	0.012	0.015	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.012	0.015	2	10.5	SB - 2	29,650	26,590
	W30 x 173	40.44	0.008	0.011	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.008	0.011	2	12	SB - 3	34,420	33,110
	W33 x 118	42.86	0.009	0.011	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.008	0.011	2	12	SB - 1	25,470	25,160
	W36 x 135	45.55	0.009	0.011	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.009	0.011	2	12	SB - 1	28,460	26,850
W40 x 149	48.20	0.007	0.009	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.007	0.009	2	12	SB - 1	31,020	28,620	
40	W18 x 130	29.25	0.044	0.057	1 x 12	1 1/4 x 12	1/2 x 17	29.25	0.045	0.054	3	9	SB - 1	29,610	27,910
	W21 x 111	31.51	0.041	0.052	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.045	0.055	2	9	SB - 1	26,300	25,170
	W24 x 104	34.06	0.035	0.044	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.035	0.044	2	9	SB - 1	24,950	25,240
	W27 x 146	37.38	0.020	0.026	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.020	0.026	2	10.5	SB - 2	33,360	29,810
	W30 x 173	40.44	0.014	0.019	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.014	0.018	2	12	SB - 3	38,790	37,240
	W33 x 118	42.86	0.014	0.018	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.014	0.018	2	12	SB - 1	28,460	28,070
	W36 x 135	45.55	0.015	0.019	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.015	0.019	2	12	SB - 1	31,870	30,000
W40 x 149	48.20	0.012	0.016	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.012	0.016	2	12	SB - 1	34,790	32,000	
45	W18 x 130	29.25	0.071	0.091	1 x 12	1 1/4 x 12	1/2 x 17	29.25	0.072	0.086	3	9	SB - 1	32,940	31,010
	W21 x 111	31.51	0.066	0.083	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.072	0.089	2	9	SB - 1	29,150	27,850
	W24 x 104	34.06	0.057	0.071	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.057	0.070	2	9	SB - 1	27,630	27,920
	W27 x 146	37.38	0.032	0.042	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.032	0.042	2	10.5	SB - 2	37,060	33,020
	W30 x 173	40.44	0.022	0.030	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.022	0.030	2	12	SB - 3	43,160	41,360
	W33 x 118	42.86	0.023	0.029	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.023	0.029	2	12	SB - 1	31,460	30,990
	W36 x 135	45.55	0.023	0.031	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.024	0.031	2	12	SB - 1	35,290	33,140
W40 x 149	48.20	0.019	0.025	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.020	0.025	2	12	SB - 1	38,560	35,380	
50	W18 x 130	29.25	0.108	0.138	1 x 12	1 1/4 x 12	1/2 x 17	29.25	0.110	0.132	3	9	SB - 1	36,250	34,080
	W21 x 111	31.51	0.101	0.126	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.109	0.135	2	9	SB - 1	31,980	30,520
	W24 x 104	34.06	0.087	0.108	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.086	0.107	2	9	SB - 1	30,290	30,600
	W27 x 146	37.38	0.049	0.064	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.049	0.064	2	10.5	SB - 2	40,760	36,250
	W30 x 173	40.44	0.034	0.046	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.033	0.045	2	12	SB - 3	47,550	45,500
	W33 x 118	42.86	0.035	0.045	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.035	0.044	2	12	SB - 1	34,470	33,910
	W36 x 135	45.55	0.035	0.047	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.037	0.047	2	12	SB - 1	38,730	36,310
W40 x 149	48.20	0.028	0.038	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.030	0.039	2	12	SB - 1	42,350	38,780	
55	W21 x 111	31.51	0.147	0.184	3/4 x 12	1 x 12	1/2 x 19.5	31.25	0.160	0.197	3	9	SB - 1	35,800	34,170
	W24 x 104	34.06	0.127	0.158	3/4 x 12	7/8 x 12	1/2 x 22.5	34.12	0.126	0.157	3	9	SB - 1	33,940	34,260
	W27 x 146	37.38	0.071	0.094	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.071	0.094	3	10.5	SB - 2	45,480	40,480
	W30 x 173	40.44	0.050	0.068	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.049	0.066	3	12	SB - 3	52,940	50,650
	W33 x 118	42.86	0.052	0.066	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.051	0.065	3	12	SB - 1	38,730	38,090
	W36 x 135	45.55	0.052	0.069	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.054	0.069	3	12	SB - 1	43,430	40,730
	W40 x 149	48.20	0.042	0.056	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.044	0.057	3	12	SB - 1	47,440	43,480
60	W21 x 132	31.83	0.174	0.225	7/8 x 12	1 1/4 x 12	1/2 x 19.5	31.62	0.190	0.240	3	9	SB - 1	44,890	41,410
	W24 x 117	34.26	0.159	0.201	3/4 x 12	1 x 12	1/2 x 22.5	34.25	0.170	0.212	3	9	SB - 1	40,480	38,450
	W27 x 146	37.38	0.101	0.133	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.101	0.133	3	10.5	SB - 2	49,190	43,700
	W30 x 173	40.44	0.070	0.096	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.069	0.093	3	12	SB - 3	57,310	54,770
	W33 x 118	42.86	0.073	0.093	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.072	0.092	3	12	SB - 1	41,720	41,000
	W36 x 135	45.55	0.073	0.097	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.076	0.097	3	12	SB - 1	46,850	43,880
	W40 x 149	48.20	0.059	0.079	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.062	0.080	3	12	SB - 1	51,210	46,860

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① For Contractor's information only. Structural Steel pay weight shall be based on Rolled Beams.

**GENERAL NOTES:**

Designed according to AASHTO LRFD Specifications.  
 See Steel Beam Span sheets for beam spacing, diaphragm locations, fabrication notes and references to values "A", "N", "X" & "Y".  
 See standard SBEB for bearing details.  
 Indicated beam/girder designs are applicable for spans with 0, 15 and 30 degree skews.  
 See Bridge Layout for beam type.  
 Change in beam type within a bridge, for example W18 to W24, is not supported by this standard.

The standard beam designs shown on these sheets are applicable for use only with the Steel Beam Spans shown on Standards SSB-30, SSB-30-15 and SSB-30-30.



**STEEL BEAM  
STANDARD DESIGNS  
30' ROADWAY**

**SBSD-30**

FILE: sbstd25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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### TABLE OF REQUIRED BEAM SIZES, DESIGN DATA AND STEEL QUANTITIES

SPAN (ft)	ROLLED BEAM				OPTIONAL PLATE GIRDER						Diaphragm Spaces "N" (ea)	Stud Spacing "X" (in)	Elastomeric Bearing Type	Estimated Quantities		
	Beam Member	Dimension "Y" (in)	Deflection "A" (feet)		Plate Sizes (inches)			Dimension "Y" (in)		Deflection "A" (feet)				Structural Steel (lbs)	PL Girder (1)	
			Slab DL	Total DL	Top Flange	Botm Flange	Web	Slab DL	Total DL	Rolled Beam						
65	W21 x 166	32.48	0.182	0.245	1 x 12	1 5/8 x 12	1/2 x 19.8	32.38	0.213	0.275	3	9	SB - 1	59,260	51,240	
	W24 x 131	34.48	0.194	0.250	7/8 x 12	1 1/8 x 12	1/2 x 22.5	34.50	0.208	0.263	3	9	SB - 1	48,000	44,570	
	W27 x 146	37.38	0.139	0.184	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.139	0.184	3	10.5	SB - 2	52,890	46,910	
	W30 x 173	40.44	0.097	0.132	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.095	0.129	3	12	SB - 3	61,590	58,910	
	W33 x 118	42.86	0.101	0.128	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.099	0.126	3	12	SB - 1	44,730	43,930	
	W36 x 135	45.55	0.101	0.134	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.105	0.134	3	12	SB - 1	50,280	47,040	
W40 x 149	48.20	0.081	0.109	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.085	0.111	3	12	SB - 1	55,000	50,260		
70	W24 x 162	35.00	0.204	0.274	1 1/8 x 12	1 1/2 x 12	1/2 x 22.5	35.12	0.216	0.284	3	9	SB - 2	62,210	56,580	
	W27 x 146	37.38	0.187	0.247	3/4 x 14	1 x 14	1/2 x 25.5	37.25	0.187	0.247	3	10.5	SB - 2	56,590	50,140	
	W30 x 173	40.44	0.130	0.178	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.128	0.173	3	12	SB - 3	66,060	63,040	
	W33 x 118	42.86	0.136	0.172	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.134	0.169	3	12	SB - 2	47,800	46,920	
	W36 x 135	45.55	0.136	0.180	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.141	0.181	3	12	SB - 2	53,780	50,270	
	W40 x 149	48.20	0.109	0.147	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.115	0.149	3	12	SB - 2	58,840	53,710	
75	W24 x 192	35.47	0.223	0.311	1 3/8 x 12	1 3/4 x 12	1/2 x 22.5	35.62	0.239	0.322	3	9	SB - 2	77,520	67,890	
	W27 x 161	37.59	0.222	0.299	7/8 x 14	1 1/4 x 14	1/2 x 25.5	37.62	0.240	0.314	3	10.5	SB - 2	65,900	60,040	
	W30 x 173	40.44	0.171	0.234	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.169	0.228	3	12	SB - 3	70,430	67,160	
	W33 x 118	42.86	0.179	0.185	3/4 x 12	3/4 x 12	1/2 x 31.5	43.00	0.176	0.223	3	12	SB - 2	50,800	49,830	
	W36 x 135	45.55	0.179	0.238	3/4 x 12	7/8 x 12	1/2 x 34	45.62	0.186	0.238	3	12	SB - 2	57,200	53,410	
	W40 x 149	48.20	0.144	0.194	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.151	0.196	3	12	SB - 2	62,610	57,090	
80	W24 x 229	36.02	0.238	0.345	1 5/8 x 12	2 1/8 x 12	1/2 x 22.5	36.25	0.250	0.350	4	9	SB - 2	98,130	83,250	
	W27 x 194	38.11	0.232	0.325	1 x 14	1 1/2 x 14	1/2 x 25.75	38.25	0.263	0.353	4	10.5	SB - 2	84,140	72,020	
	W30 x 173	40.44	0.222	0.303	1 x 15	1 1/4 x 15	1/2 x 28.5	40.75	0.219	0.295	4	12	SB - 3	75,840	72,320	
	W33 x 152	43.49	0.223	0.296	3/4 x 12	1 1/8 x 12	1/2 x 31.5	43.38	0.256	0.330	4	12	SB - 2	68,620	60,120	
	W36 x 150	45.85	0.201	0.272	3/4 x 12	1 1/8 x 12	1/2 x 34	45.88	0.217	0.282	4	12	SB - 2	67,890	61,920	
	W40 x 149	48.20	0.186	0.251	3/4 x 12	1 x 12	1/2 x 36.5	48.25	0.196	0.254	4	12	SB - 2	67,720	61,810	
85	W27 x 235	38.66	0.241	0.353	1 1/4 x 14	1 3/4 x 14	1/2 x 25.75	38.75	0.278	0.385	4	10.5	SB - 2	106,390	86,210	
	W30 x 191	40.68	0.254	0.354	1 x 15	1 3/8 x 15	1/2 x 28.5	40.88	0.268	0.364	4	12	SB - 3	87,830	79,160	
	W33 x 169	43.82	0.250	0.340	1 x 12	1 1/4 x 12	1/2 x 31.5	43.75	0.276	0.364	4	12	SB - 2	79,660	69,890	
	W36 x 160	46.01	0.239	0.327	7/8 x 12	1 1/4 x 12	1/2 x 34	46.12	0.249	0.327	4	12	SB - 2	75,910	69,640	
	W40 x 167	48.59	0.201	0.278	7/8 x 12	1 1/4 x 12	1/2 x 36.5	48.62	0.214	0.283	4	12	SB - 2	79,110	71,670	
90	W27 x 258	38.98	0.272	0.409	1 1/2 x 14	2 1/8 x 14	1/2 x 25.5	39.12	0.295	0.422	4	10.5	SB - 2	122,640	104,060	
	W30 x 211	40.94	0.285	0.408	1 x 15	1 1/2 x 15	1/2 x 28.5	41.00	0.325	0.444	4	12	SB - 3	101,610	86,270	
	W33 x 201	43.68	0.255	0.361	3/4 x 16	1 1/4 x 16	1/2 x 31.5	43.50	0.312	0.418	4	12	SB - 3	98,350	81,480	
	W36 x 231	46.49	0.269	0.402	1 1/8 x 16	1 1/2 x 16	1/2 x 33.5	46.12	0.210	0.296	4	12	SB - 3	111,860	98,330	
	W40 x 199	48.67	0.245	0.353	7/8 x 16	1 1/4 x 16	1/2 x 36.5	48.62	0.223	0.304	4	12	SB - 3	97,760	88,760	
95	W30 x 235	41.30	0.312	0.459	1 x 15	1 3/4 x 15	1/2 x 28.5	41.25	0.377	0.522	4	12	SB - 3	118,310	96,780	
	W33 x 221	43.93	0.286	0.414	1 1/4 x 16	1 3/8 x 16	1/2 x 31.5	44.12	0.290	0.409	4	12	SB - 3	112,900	101,690	
	W36 x 231	46.49	0.299	0.448	1 1/8 x 16	1 1/2 x 16	1/2 x 33.5	46.12	0.260	0.368	4	12	SB - 3	117,690	103,380	
	W40 x 199	48.67	0.273	0.394	7/8 x 16	1 1/4 x 16	1/2 x 36.5	48.62	0.276	0.377	4	12	SB - 3	102,790	93,220	
100	W33 x 241	44.18	0.317	0.470	1 1/8 x 16	1 5/8 x 16	1/2 x 31.5	44.25	0.348	0.493	4	12	SB - 3	128,440	110,030	
	W36 x 231	46.49	0.332	0.496	1 1/8 x 16	1 1/2 x 16	1/2 x 33.5	46.12	0.320	0.451	4	12	SB - 3	123,510	108,420	
	W40 x 199	48.67	0.302	0.436	7/8 x 16	1 1/4 x 16	1/2 x 36.5	48.62	0.339	0.463	4	12	SB - 3	107,810	97,700	
105	W33 x 263	44.53	0.347	0.538	1 1/4 x 16	1 3/4 x 16	1/2 x 31.5	44.50	0.389	0.559	5	12	SB - 3	147,290	123,540	
	W36 x 231	46.49	0.366	0.547	1 1/8 x 16	1 1/2 x 16	1/2 x 33.5	46.12	0.389	0.549	5	12	SB - 3	130,600	114,740	
	W40 x 215	48.98	0.329	0.484	1 x 16	1 3/8 x 16	1/2 x 36.5	48.88	0.365	0.513	5	12	SB - 3	122,530	110,630	
110	W33 x 291	44.84	0.374	0.585	1 1/2 x 16	2 x 16	1/2 x 31.5	45.00	0.398	0.592	5	12	SB - 3	169,280	143,930	
	W36 x 262	46.85	0.384	0.581	1 1/4 x 16	1 3/4 x 16	1/2 x 33.5	46.50	0.416	0.612	5	12	SB - 3	153,440	130,970	
	W40 x 249	49.38	0.372	0.558	1 1/8 x 16	1 5/8 x 16	1/2 x 36.5	49.25	0.413	0.595	5	12	SB - 3	146,610	126,650	
115	W36 x 302	47.33	0.390	0.616	1 3/8 x 16	2 1/8 x 16	1/2 x 33.5	47.00	0.434	0.656	5	12	SB - 3	182,970	152,110	
	W40 x 249	49.38	0.407	0.609	1 1/8 x 16	1 5/8 x 16	1/2 x 36.5	49.25	0.451	0.650	5	12	SB - 3	152,880	131,990	
120	W40 x 277	49.69	0.430	0.664	1 1/4 x 16	1 7/8 x 16	1/2 x 36.5	49.62	0.484	0.705	5	12	SB - 3	175,900	149,530	

(1) For Contractor's information only. Structural Steel pay weight shall be based on Rolled Beams.

Texas Department of Transportation

STEEL BEAM  
 STANDARD DESIGNS  
 30' ROADWAY

SBS-D-30

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Bridge Division Standard