DESIGN GUIDE
LRFD WEIGHT TABLE FOR
COMPOSITE STEEL JOISTS

CJ-SERIES

Light Weight Concrete

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
20	10	Wt(plf)	5.0	5.2	5.6	6.2	6.7	7.2	7.6	8.1	10.4
		W360(plf)	238	238	285	327	387	420	447	507	610
		N-ds	12-3/8"	12-3/8"	14-3/8"	18-3/8"	22-3/8"	24-3/8"	26-3/8"	30-3/8"	22-1/2"
		Ieff(in4)	44	44	53	61	72	78	83	94	114
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H
	12	Wt(plf)	5.1	5.3	5.7	6.2	6.4	7.1	7.5	7.8	9.9
		W360(plf)	306	306	367	406	421	500	542	586	702
		N-ds	12-3/8"	12-3/8"	14-3/8"	16-3/8"	18-3/8"	22-3/8"	24-3/8"	26-3/8"	18-1/2"
		Ieff(in4)	57	57	68	76	78	93	101	109	131
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H
	14	Wt(plf)	5.1	5.3	5.4	5.9	6.3	6.4	7.0	8.4	9.5
		W360(plf)	385	385	385	463	513	533	583	673	793
		N-ds	12-3/8"	12-3/8"	12-3/8"	14-3/8"	16-3/8"	18-3/8"	20-3/8"	12-1/2"	16-1/2"
		Ieff(in4)	72	72	72	86	95	99	109	125	148
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H
	16	Wt(plf)	5.2	5.3	5.5	5.9	6.2	6.8	7.9	8.1	9.9
		W360(plf)	476	476	476	573	573	644	689	766	940
		N-ds	12-3/8"	12-3/8"	12-3/8"	14-3/8"	14-3/8"	16-3/8"	10-1/2"	12-1/2"	14-1/2"
		Ieff(in4)	89	89	89	107	107	120	128	143	175
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	18	Wt(plf)	5.2	5.2	5.3	5.3	5.7	5.8	6.1	6.5	6.9
		W360(plf)	605	605	605	605	732	732	812	938	1031
		N-ds	12-3/8"	12-3/8"	12-3/8"	12-3/8"	14-3/8"	14-3/8"	16-3/8"	20-3/8"	22-3/8"
		Ieff(in4)	113	113	113	113	136	136	151	175	192
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	20	Wt(plf)	5.3	5.3	5.3	5.4	5.4	5.4	5.7	6.1	7.5
		W360(plf)	701	701	701	701	847	847	939	1003	1251
		N-ds	12-3/8"	12-3/8"	12-3/8"	12-3/8"	14-3/8"	14-3/8"	16-3/8"	16-3/8"	12-1/2"
		Ieff(in4)	130	130	130	130	158	158	175	187	233
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	24	Wt(plf)	5.4	5.4	5.4	5.5	5.9	5.9	5.8	6.2	8.0
		W360(plf)	881	881	881	881	1062	1062	1175	1258	1570
		N-ds	12-3/8"	12-3/8"	12-3/8"	12-3/8"	14-3/8"	14-3/8"	16-3/8"	16-3/8"	12-1/2"
		Ieff(in4)	164	164	164	164	198	198	219	234	292
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	28	Wt(plf)	5.7	5.7	5.7	5.8	6.2	6.2	6.4	6.4	8.2
		W360(plf)	1043	1043	1043	1043	1252	1252	1382	1481	1852
		N-ds	12-3/8"	12-3/8"	12-3/8"	12-3/8"	14-3/8"	14-3/8"	16-3/8"	16-3/8"	12-1/2"
		Ieff(in4)	194	194	194	194	233	233	257	276	345
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	32	Wt(plf)	5.9	5.9	5.9	6.0	6.0	6.1	6.6	7.7	7.8
		W360(plf)	1183	1183	1183	1183	1183	1446	1622	1679	2092
		N-ds	12-3/8"	12-3/8"	12-3/8"	12-3/8"	12-3/8"	14-3/8"	16-3/8"	10-1/2"	12-1/2"
		Ieff(in4)	220	220	220	220	220	269	302	313	390
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"	5"	7 1/2"								
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 4.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3	
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15	
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot													
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**	
11.0	12.5	13.2	15.3	15.9	16.9	20.0	22	22	23	26	28	29	
776	884	956	1103	1145	1218	1428	1516	1680	1797	1984	2057	2156	
24-1/2"	26-1/2"	30-1/2"	20-5/8"	24-5/8"	24-5/8"	24-3/4"	26-3/4"	22-3/4"	26-3/4"	30-3/4"	32-3/4"	36-3/4"	
144	165	178	205	213	227	266	282	313	335	369	383	402	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
10.6	11.3	12.9	13.2	15.3	16.3	17.3	19.8	21	22	24	24	25	
858	961	1098	1198	1298	1417	1509	1697	1938	2056	2202	2202	2337	
20-1/2"	24-1/2"	26-1/2"	28-1/2"	18-5/8"	24-5/8"	24-5/8"	30-5/8"	20-3/4"	22-3/4"	26-3/4"	26-3/4"	30-3/4"	
160	179	205	223	242	264	281	316	361	383	410	410	435	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
10.4	11.7	12.3	13.6	14.4	16.5	17.6	18.2	20	23	24	25	27	
1021	1163	1240	1384	1488	1656	1816	1914	2249	2459	2615	2809	2875	
18-1/2"	22-1/2"	22-1/2"	16-5/8"	16-5/8"	20-5/8"	24-5/8"	26-5/8"	18-3/4"	20-3/4"	22-3/4"	26-3/4"	26-3/4"	
190	217	231	258	277	308	338	356	419	458	487	523	535	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
10.6	12.0	13.2	14.6	15.0	16.0	18.2	19.1	21	23	24	26	27	
1180	1358	1482	1735	1850	1935	2176	2407	2815	2978	3170	3488	3557	
16-1/2"	18-1/2"	14-5/8"	16-5/8"	18-5/8"	18-5/8"	16-3/4"	18-3/4"	18-3/4"	20-3/4"	22-3/4"	26-3/4"	26-3/4"	
220	253	276	323	345	360	405	448	524	554	590	650	662	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
7.6	9.2	10.3	10.5	11.7	12.3	14.2	15.4	16.5	17.8	20	21	23	
1365	1534	1754	1910	2058	2190	2478	2727	3089	3310	3669	3906	4200	
26-3/8"	18-1/2"	22-1/2"	22-1/2"	24-1/2"	26-1/2"	18-5/8"	24-5/8"	24-5/8"	28-5/8"	20-3/4"	22-3/4"	26-3/4"	
254	286	327	356	383	408	461	508	575	616	683	727	782	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
8.0	9.6	10.4	11.0	12.1	13.3	14.9	15.7	16.4	18.4	19	20	23	
1549	1701	1917	2138	2320	2608	2795	3062	3392	3695	3906	4139	4572	
16-1/2"	16-1/2"	20-1/2"	18-1/2"	14-5/8"	16-5/8"	18-5/8"	22-5/8"	24-5/8"	16-3/4"	18-3/4"	20-3/4"	22-3/4"	
288	317	357	398	432	486	520	570	632	688	727	771	851	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
8.1	9.6	10.4	11.1	12.3	13.5	14.8	15.6	16.3	18.2	18.9	20	23	
1884	2075	2335	2588	2816	3164	3401	3720	4063	4443	4692	4970	5514	
16-1/2"	16-1/2"	20-1/2"	18-1/2"	14-5/8"	16-5/8"	18-5/8"	22-5/8"	24-5/8"	16-3/4"	18-3/4"	20-3/4"	22-3/4"	
351	386	435	482	524	589	633	693	757	827	874	925	1030	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
8.7	9.7	10.5	11.2	12.4	13.5	15.0	15.6	16.4	18.3	19.0	20	23	
2169	2396	2690	2966	3237	3633	3918	4275	4620	5069	5346	5658	6305	
16-1/2"	16-1/2"	20-1/2"	18-1/2"	14-5/8"	16-5/8"	18-5/8"	22-5/8"	24-5/8"	16-3/4"	18-3/4"	20-3/4"	22-3/4"	
404	446	501	552	603	677	729	796	860	944	995	1050	1170	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	
9.4	9.7	11.3	12.4	13.3	13.9	14.8	15.5	17.5	18.2	20	21	22	
2500	2666	3093	3449	3698	3913	4350	4736	5306	5588	6180	6554	6961	
16-1/2"	16-1/2"	18-1/2"	14-5/8"	14-5/8"	16-5/8"	18-5/8"	22-5/8"	16-3/4"	16-3/4"	18-3/4"	20-3/4"	22-3/4"	
466	496	576	642	689	729	810	882	988	1040	1150	1220	1300	
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X	

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT		2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
25	10	Wt(plf)	5.5	6.2	7.0	7.8	8.5	9.1	11.1	12.3	13.7
		W360(plf)	162	205	243	272	310	326	375	418	493
		N-ds	14-3/8"	20-3/8"	24-3/8"	28-3/8"	32-3/8"	36-3/8"	24-1/2"	28-1/2"	34-1/2"
		Ieff(in4)	59	75	88	99	113	119	136	152	179
		Bridging	(1)X+(1)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	12	Wt(plf)	5.6	6.2	6.6	7.4	8.0	9.0	9.4	11.9	12.6
		W360(plf)	204	226	258	305	341	387	407	485	536
		N-ds	14-3/8"	16-3/8"	20-3/8"	24-3/8"	28-3/8"	32-3/8"	36-3/8"	24-1/2"	28-1/2"
		Ieff(in4)	74	82	94	111	124	141	148	176	195
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	14	Wt(plf)	5.3	6.0	6.4	7.1	7.6	9.5	10.0	10.6	12.7
		W360(plf)	210	254	293	349	379	445	475	546	631
		N-ds	14-3/8"	14-3/8"	18-3/8"	22-3/8"	24-3/8"	16-1/2"	18-1/2"	22-1/2"	24-1/2"
		Ieff(in4)	77	92	107	127	138	162	173	199	229
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H
	16	Wt(plf)	5.6	6.0	6.5	6.9	7.5	8.5	10.2	10.6	11.4
		W360(plf)	257	311	345	394	428	504	547	595	681
		N-ds	14-3/8"	14-3/8"	16-3/8"	20-3/8"	22-3/8"	26-3/8"	16-1/2"	18-1/2"	22-1/2"
		Ieff(in4)	94	113	125	143	156	183	199	216	248
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	18	Wt(plf)	5.3	5.3	5.6	6.0	6.4	7.0	7.4	7.8	8.6
		W360(plf)	332	332	403	448	513	609	650	694	802
		N-ds	14-3/8"	14-3/8"	14-3/8"	16-3/8"	20-3/8"	24-3/8"	26-3/8"	28-3/8"	32-3/8"
		Ieff(in4)	121	121	147	163	187	221	236	252	292
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	20	Wt(plf)	5.4	5.4	5.7	6.0	6.5	6.8	7.2	7.6	8.2
		W360(plf)	393	393	477	530	608	662	720	780	886
		N-ds	14-3/8"	14-3/8"	14-3/8"	16-3/8"	20-3/8"	22-3/8"	24-3/8"	26-3/8"	30-3/8"
		Ieff(in4)	143	143	174	193	221	241	262	284	322
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	24	Wt(plf)	5.6	5.6	5.6	6.0	6.3	6.7	7.1	7.5	7.6
		W360(plf)	517	517	517	627	696	797	867	953	1026
		N-ds	14-3/8"	14-3/8"	14-3/8"	14-3/8"	16-3/8"	20-3/8"	22-3/8"	24-3/8"	26-3/8"
		Ieff(in4)	188	188	188	228	253	290	315	347	373
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	28	Wt(plf)	5.6	5.7	5.8	5.8	6.0	6.4	7.2	7.9	9.7
		W360(plf)	637	637	637	771	854	906	1015	1132	1365
		N-ds	14-3/8"	14-3/8"	14-3/8"	14-3/8"	16-3/8"	16-3/8"	18-3/8"	14-1/2"	16-1/2"
		Ieff(in4)	232	232	232	280	311	330	369	412	496
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H
	32	Wt(plf)	5.9	5.9	6.0	6.0	6.2	6.6	7.1	8.0	8.7
		W360(plf)	749	749	749	903	999	1062	1179	1328	1554
		N-ds	14-3/8"	14-3/8"	14-3/8"	14-3/8"	16-3/8"	16-3/8"	18-3/8"	14-1/2"	16-1/2"
		Ieff(in4)	272	272	272	329	363	386	429	483	565
		Bridging	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"	5"	7 1/2"								
Concrete Slab Parameters													
Light Weight Concrete (145 pcf) f'c = 4.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot												
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**
14.6	15.9	18.7	19.1	21	24	26	28	30	32	35	39	39
666	712	837	903	985	1091	1198	1269	1469	1575	1695	1878	1878
36-1/2"	40-1/2"	34-5/8"	32-5/8"	36-5/8"	32-3/4"	38-3/4"	44-3/4"	38-3/4"	40-3/4"	48-3/4"	56-3/4"	56-3/4"
242	259	305	329	358	397	436	462	534	573	616	683	683
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
13.1	15.6	16.3	18.3	20	22	25	26	27	30	32	35	35
698	800	851	986	1049	1157	1290	1344	1547	1700	1785	1967	1967
32-1/2"	36-1/2"	40-1/2"	30-5/8"	32-5/8"	36-5/8"	32-3/4"	34-3/4"	34-3/4"	38-3/4"	42-3/4"	48-3/4"	48-3/4"
254	291	310	359	381	421	469	489	563	618	649	715	715
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
13.0	15.0	17.1	18.1	19.4	20.0	23	26	26	28	31	32	34
796	912	1025	1149	1230	1309	1456	1609	1742	1912	2074	2118	2228
28-1/2"	22-5/8"	26-5/8"	24-5/8"	30-5/8"	34-5/8"	28-3/4"	32-3/4"	28-3/4"	34-3/4"	36-3/4"	36-3/4"	40-3/4"
290	332	373	418	447	476	530	585	634	696	754	770	810
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
12.5	14.7	15.9	17.2	18.7	20.0	22	23	25	26	28	30	33
859	991	1104	1232	1393	1474	1622	1749	1942	2073	2165	2336	2529
24-1/2"	26-1/2"	22-5/8"	22-5/8"	26-5/8"	30-5/8"	24-3/4"	28-3/4"	24-3/4"	28-3/4"	30-3/4"	32-3/4"	36-3/4"
313	360	402	448	507	536	590	636	706	754	787	850	920
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
9.1	10.8	12.7	13.2	15.1	15.8	18.3	21	22	24	26	27	30
1017	1172	1323	1445	1575	1665	1915	2128	2456	2538	2717	2846	3068
36-3/8"	26-1/2"	30-1/2"	30-1/2"	22-5/8"	24-5/8"	28-5/8"	24-3/4"	24-3/4"	24-3/4"	28-3/4"	30-3/4"	32-3/4"
370	426	481	526	573	606	696	774	893	923	988	1040	1120
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
9.2	10.7	12.1	12.6	14.5	15.3	17.1	19	21	23	25	26	29
1123	1282	1417	1535	1746	1834	2074	2261	2638	2848	2945	3154	3377
32-3/8"	24-1/2"	26-1/2"	26-1/2"	20-5/8"	22-5/8"	24-5/8"	30-5/8"	22-3/4"	24-3/4"	24-3/4"	28-3/4"	30-3/4"
408	466	515	558	635	667	754	822	959	1040	1070	1150	1230
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
8.9	10.3	12.2	12.7	13.6	15.5	16.7	19	21	23	25	26	29
1333	1564	1808	1942	2044	2329	2489	2880	3327	3588	3725	3987	4281
30-3/8"	24-1/2"	26-1/2"	26-1/2"	26-1/2"	22-5/8"	24-5/8"	30-5/8"	22-3/4"	24-3/4"	24-3/4"	28-3/4"	30-3/4"
485	569	657	706	743	847	905	1050	1210	1300	1350	1450	1560
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
10.6	11.8	12.8	14.0	15.3	15.8	17.0	18.4	22	23	24	24	27
1697	1881	2113	2362	2609	2749	3058	3290	3839	4101	4428	4428	4855
20-1/2"	20-1/2"	18-5/8"	16-5/8"	20-5/8"	20-5/8"	24-5/8"	24-5/8"	20-3/4"	22-3/4"	24-3/4"	24-3/4"	26-3/4"
617	684	768	859	949	1000	1110	1200	1400	1490	1610	1610	1770
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
10.7	11.4	12.8	13.6	15.4	15.9	16.9	18.4	20	23	24	24	26
1953	2130	2432	2670	2993	3151	3497	3765	4202	4678	5041	5041	5379
20-1/2"	20-1/2"	18-5/8"	16-5/8"	20-5/8"	20-5/8"	24-5/8"	24-5/8"	20-3/4"	22-3/4"	24-3/4"	24-3/4"	28-3/4"
710	775	884	971	1090	1150	1270	1370	1530	1700	1830	1830	1960
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
30	12	Wt(plf)	6.1	7.2	7.9	8.7	10.1	11.4	13.5	14.0	15.5
		W360(plf)	148	194	218	249	291	316	359	390	444
		N-ds	18-3/8"	24-3/8"	28-3/8"	32-3/8"	40-3/8"	46-3/8"	32-1/2"	34-1/2"	40-1/2"
		Ieff(in4)	93	122	137	157	183	198	226	245	279
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(2)H	(2)H	(2)H	(2)H
	14	Wt(plf)	6.2	6.9	7.7	8.4	10.5	11.3	12.3	13.1	15.4
		W360(plf)	175	218	253	284	334	371	387	433	525
		N-ds	16-3/8"	22-3/8"	26-3/8"	30-3/8"	22-1/2"	24-1/2"	26-1/2"	30-1/2"	36-1/2"
		Ieff(in4)	110	137	159	179	210	233	243	272	330
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	16	Wt(plf)	6.0	6.8	7.4	8.4	9.9	11.2	12.5	13.1	16.0
		W360(plf)	190	242	287	311	360	406	461	492	590
		N-ds	16-3/8"	20-3/8"	24-3/8"	26-3/8"	18-1/2"	22-1/2"	24-1/2"	26-1/2"	22-5/8"
		Ieff(in4)	120	152	180	195	226	255	290	309	370
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	18	Wt(plf)	5.6	5.8	6.6	7.0	7.6	8.2	8.6	9.6	11.5
		W360(plf)	240	267	334	364	409	467	492	565	648
		N-ds	16-3/8"	16-3/8"	22-3/8"	24-3/8"	28-3/8"	32-3/8"	36-3/8"	40-3/8"	28-1/2"
		Ieff(in4)	151	168	210	229	257	293	309	355	407
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	20	Wt(plf)	5.3	5.7	6.3	6.7	7.4	8.1	8.3	8.7	11.2
		W360(plf)	237	288	368	402	467	525	561	602	750
		N-ds	16-3/8"	16-3/8"	20-3/8"	22-3/8"	26-3/8"	30-3/8"	32-3/8"	36-3/8"	26-1/2"
		Ieff(in4)	149	181	231	252	294	330	353	378	471
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	24	Wt(plf)	5.5	5.9	6.1	6.6	7.0	7.7	7.8	8.1	10.3
		W360(plf)	320	390	434	498	543	631	664	720	872
		N-ds	16-3/8"	16-3/8"	16-3/8"	20-3/8"	22-3/8"	26-3/8"	28-3/8"	30-3/8"	22-1/2"
		Ieff(in4)	201	245	273	313	341	397	418	452	548
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	26	Wt(plf)	5.6	5.7	6.0	6.4	7.1	7.3	7.6	7.9	9.4
		W360(plf)	363	363	442	514	615	669	714	762	912
		N-ds	16-3/8"	16-3/8"	16-3/8"	18-3/8"	22-3/8"	24-3/8"	26-3/8"	28-3/8"	32-3/8"
		Ieff(in4)	228	228	278	323	386	421	449	479	573
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	28	Wt(plf)	5.8	5.8	6.2	6.5	6.7	7.1	7.5	8.0	9.4
		W360(plf)	407	407	494	550	630	686	746	848	1015
		N-ds	16-3/8"	16-3/8"	16-3/8"	16-3/8"	20-3/8"	22-3/8"	24-3/8"	28-3/8"	32-3/8"
		Ieff(in4)	256	256	311	345	396	431	469	533	638
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	32	Wt(plf)	5.8	5.9	6.0	6.2	6.6	7.3	7.8	8.8	10.8
		W360(plf)	492	492	597	662	757	838	924	1024	1198
		N-ds	16-3/8"	16-3/8"	16-3/8"	16-3/8"	20-3/8"	22-3/8"	24-3/8"	16-1/2"	18-1/2"
		Ieff(in4)	309	309	375	416	476	527	581	643	753
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
17.9	19.4	22	24	27	28	34	34	38	40	43	45	48
625	689	764	878	970	1032	1214	1214	1498	1524	1645	1687	1766
48-1/2"	52-1/2"	42-5/8"	44-5/8"	36-3/4"	42-3/4"	54-3/4"	54-3/4"	54-3/4"	54-3/4"	64-3/4"	64-3/4"	72-3/4"
393	433	480	552	610	648	763	763	942	958	1030	1060	1110
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
17.4	19.3	21.0	25	25	27	30	31	35	36	40	43	45
671	774	864	1012	1068	1127	1237	1305	1567	1599	1771	1910	1942
28-5/8"	34-5/8"	38-5/8"	30-3/4"	34-3/4"	36-3/4"	42-3/4"	46-3/4"	46-3/4"	46-3/4"	54-3/4"	64-3/4"	64-3/4"
422	486	543	636	671	708	777	820	985	1000	1110	1200	1220
(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
16.9	18.6	21	23	23	26	28	31	33	37	37	41	43
758	829	948	1113	1121	1240	1372	1490	1722	1892	1892	2105	2143
26-5/8"	28-5/8"	34-5/8"	26-3/4"	26-3/4"	30-3/4"	36-3/4"	40-3/4"	38-3/4"	46-3/4"	46-3/4"	54-3/4"	54-3/4"
477	521	596	699	704	779	862	936	1080	1190	1190	1320	1350
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
11.6	14.3	16.9	17.9	20	21	24	28	29	32	35	36	41
803	925	1088	1220	1340	1376	1593	1739	1978	2132	2315	2361	2622
32-1/2"	36-1/2"	30-5/8"	32-5/8"	36-5/8"	36-5/8"	34-3/4"	36-3/4"	36-3/4"	38-3/4"	46-3/4"	46-3/4"	54-3/4"
505	581	684	766	842	865	1000	1090	1240	1340	1450	1480	1650
(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
11.5	13.7	15.3	17.1	18.6	20	23	25	28	29	32	34	37
907	1041	1187	1356	1473	1614	1805	1895	2201	2340	2524	2571	2799
30-1/2"	34-1/2"	38-1/2"	28-5/8"	30-5/8"	36-5/8"	30-3/4"	34-3/4"	32-3/4"	36-3/4"	38-3/4"	38-3/4"	46-3/4"
570	654	746	852	925	1010	1130	1190	1380	1470	1590	1620	1760
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
11.0	12.9	14.3	15.9	17.0	18.5	21	23	26	27	30	33	33
1102	1246	1404	1586	1707	1843	2054	2226	2597	2731	2950	3200	3200
26-1/2"	30-1/2"	32-1/2"	24-5/8"	24-5/8"	28-5/8"	24-3/4"	26-3/4"	26-3/4"	28-3/4"	30-3/4"	34-3/4"	34-3/4"
693	783	882	997	1070	1160	1290	1400	1630	1720	1850	2010	2010
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
10.6	12.7	14.0	15.5	16.5	17.9	21	23	25	26	29	31	33
1158	1342	1497	1676	1801	1935	2302	2494	2700	2898	3114	3357	3577
24-1/2"	28-1/2"	30-1/2"	22-5/8"	24-5/8"	24-5/8"	24-3/4"	26-3/4"	24-3/4"	26-3/4"	28-3/4"	30-3/4"	34-3/4"
728	844	940	1050	1130	1220	1450	1570	1700	1820	1960	2110	2250
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
10.5	12.7	13.7	15.5	16.7	18.0	21	23	25	27	29	31	33
1225	1417	1570	1849	1986	2135	2376	2754	2974	3191	3432	3702	3943
24-1/2"	26-1/2"	28-1/2"	22-5/8"	24-5/8"	24-5/8"	22-3/4"	26-3/4"	24-3/4"	26-3/4"	28-3/4"	30-3/4"	34-3/4"
770	890	987	1160	1250	1340	1490	1730	1870	2010	2160	2330	2480
(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
11.6	13.4	14.2	15.7	17.2	18.1	19.1	21	24	26	27	30	31
1494	1740	1909	2117	2404	2546	2713	2947	3489	3739	3929	4258	4523
22-1/2"	18-5/8"	20-5/8"	20-5/8"	24-5/8"	26-5/8"	28-5/8"	30-5/8"	24-3/4"	26-3/4"	28-3/4"	30-3/4"	34-3/4"
939	1090	1200	1330	1510	1600	1700	1850	2190	2350	2470	2680	2840
(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
35	14	Wt(plf)	6.9	8.0	8.8	10.1	12.7	13.6	14.7	16.2	20.0
		W360(plf)	148	182	208	244	275	302	335	372	448
		N-ds	22-3/8"	28-3/8"	32-3/8"	40-3/8"	28-1/2"	32-1/2"	36-1/2"	40-1/2"	34-5/8"
		Ieff(in4)	148	182	208	244	275	301	334	371	447
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H	(2)H
	16	Wt(plf)	6.9	7.8	8.7	10.1	12.0	13.1	13.7	16.3	18.3
		W360(plf)	162	193	232	262	304	346	361	421	488
		N-ds	20-3/8"	24-3/8"	30-3/8"	36-3/8"	24-1/2"	30-1/2"	32-1/2"	36-1/2"	42-1/2"
		Ieff(in4)	162	193	232	261	303	345	360	421	487
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H	(2)H
	18	Wt(plf)	5.9	6.6	7.3	8.1	8.8	9.6	11.6	12.2	14.3
		W360(plf)	170	213	261	298	327	362	417	446	533
		N-ds	18-3/8"	22-3/8"	28-3/8"	32-3/8"	38-3/8"	44-3/8"	30-1/2"	32-1/2"	40-1/2"
		Ieff(in4)	170	213	261	298	327	361	416	445	531
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(2)H	(2)H	(2)H
	20	Wt(plf)	5.9	6.6	7.1	7.7	8.6	9.3	10.0	11.7	12.6
		W360(plf)	206	258	301	338	381	421	448	518	583
		N-ds	18-3/8"	22-3/8"	26-3/8"	30-3/8"	36-3/8"	40-3/8"	42-3/8"	30-1/2"	34-1/2"
		Ieff(in4)	205	258	300	338	381	420	447	517	581
		Bridging	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(2)H	(2)H	(2)H	(2)H
	22	Wt(plf)	5.8	6.4	7.1	7.5	8.3	8.7	9.7	11.3	12.4
		W360(plf)	219	280	334	376	429	452	509	586	657
		N-ds	18-3/8"	20-3/8"	24-3/8"	28-3/8"	32-3/8"	36-3/8"	40-3/8"	28-1/2"	32-1/2"
		Ieff(in4)	218	280	333	375	428	451	508	585	655
		Bridging	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(2)H	(2)H	(2)H	(2)H
	24	Wt(plf)	5.9	6.2	6.9	7.3	8.0	8.4	9.4	10.8	12.0
		W360(plf)	255	297	356	415	467	499	558	628	730
		N-ds	18-3/8"	18-3/8"	22-3/8"	26-3/8"	30-3/8"	32-3/8"	38-3/8"	24-1/2"	30-1/2"
		Ieff(in4)	254	296	355	414	466	498	557	627	728
		Bridging	(1)X+(1)H	(1)X+(1)H	(1)X+(1)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	26	Wt(plf)	6.0	6.2	6.7	7.1	7.7	8.5	9.2	10.5	11.6
		W360(plf)	292	325	374	444	500	571	613	676	795
		N-ds	18-3/8"	18-3/8"	20-3/8"	24-3/8"	28-3/8"	32-3/8"	36-3/8"	22-1/2"	28-1/2"
		Ieff(in4)	291	324	373	444	499	570	612	674	793
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	28	Wt(plf)	5.8	6.4	6.8	7.2	7.6	8.2	9.0	10.3	11.4
		W360(plf)	270	367	422	502	536	602	656	731	863
		N-ds	18-3/8"	18-3/8"	20-3/8"	24-3/8"	26-3/8"	30-3/8"	32-3/8"	22-1/2"	26-1/2"
		Ieff(in4)	270	366	421	501	535	601	655	730	861
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H
	32	Wt(plf)	5.9	6.0	6.3	6.7	7.3	7.9	9.4	10.0	11.9
		W360(plf)	334	407	452	519	616	669	781	851	976
		N-ds	18-3/8"	18-3/8"	18-3/8"	20-3/8"	24-3/8"	26-3/8"	18-1/2"	20-1/2"	22-1/2"
		Ieff(in4)	333	406	451	518	614	667	779	849	974
		Bridging	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
21	24	25	28	29	33	36	41	42	47	51	53	57
579	671	719	841	898	1013	1130	1248	1387	1494	1616	1640	1695
36-5/8"	46-5/8"	50-5/8"	38-3/4"	44-3/4"	52-3/4"	62-3/4"	70-3/4"	62-3/4"	70-3/4"	80-3/4"	80-3/4"	86-3/4"
578	669	717	839	896	1010	1130	1250	1380	1490	1610	1640	1690
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X
20	23	24	25	28	29	34	38	39	42	46	48	53
616	735	787	881	974	1036	1177	1321	1451	1569	1670	1698	1866
34-5/8"	40-5/8"	46-5/8"	48-5/8"	38-3/4"	44-3/4"	52-3/4"	60-3/4"	52-3/4"	62-3/4"	70-3/4"	70-3/4"	80-3/4"
615	734	785	879	972	1030	1170	1320	1450	1570	1670	1690	1860
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
15.7	19.0	21	22	25	27	30	33	38	40	44	45	50
658	795	868	970	1079	1156	1277	1389	1663	1699	1864	1895	2030
44-1/2"	38-5/8"	40-5/8"	42-5/8"	34-3/4"	38-3/4"	44-3/4"	52-3/4"	52-3/4"	52-3/4"	62-3/4"	62-3/4"	70-3/4"
657	794	866	968	1080	1150	1270	1390	1660	1700	1860	1890	2030
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
14.8	17.8	19.5	21	24	26	29	33	35	39	41	45	47
747	888	978	1113	1227	1307	1453	1674	1817	2036	2064	2273	2313
40-1/2"	34-5/8"	36-5/8"	38-5/8"	32-3/4"	34-3/4"	38-3/4"	52-3/4"	44-3/4"	52-3/4"	52-3/4"	62-3/4"	62-3/4"
746	886	976	1110	1220	1300	1450	1670	1810	2030	2060	2270	2310
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
14.2	16.9	18.1	20	23	24	28	31	32	36	40	42	45
831	980	1056	1221	1373	1454	1603	1809	1953	2172	2422	2459	2669
36-1/2"	30-5/8"	34-5/8"	34-5/8"	30-3/4"	32-3/4"	34-3/4"	44-3/4"	36-3/4"	44-3/4"	52-3/4"	52-3/4"	62-3/4"
829	978	1050	1220	1370	1450	1600	1810	1950	2170	2420	2450	2660
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
13.8	16.2	17.3	19	22	23	28	29	31	36	37	42	43
907	1064	1142	1301	1475	1595	1852	1975	2123	2500	2533	2833	2833
34-1/2"	28-5/8"	30-5/8"	30-5/8"	26-3/4"	30-3/4"	34-3/4"	38-3/4"	32-3/4"	44-3/4"	44-3/4"	52-3/4"	52-3/4"
906	1060	1140	1300	1470	1590	1850	1970	2120	2490	2530	2830	2830
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
13.4	15.8	17.4	19.2	21	22	27	28	31	34	36	39	43
980	1140	1299	1476	1628	1684	1984	2104	2402	2589	2831	2912	3211
32-1/2"	26-5/8"	30-5/8"	30-5/8"	34-5/8"	26-3/4"	32-3/4"	34-3/4"	32-3/4"	36-3/4"	44-3/4"	44-3/4"	52-3/4"
978	1140	1300	1470	1620	1680	1980	2100	2400	2580	2830	2910	3200
(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
13.6	15.0	16.7	18.5	20	23	26	27	30	33	34	38	40
1098	1194	1365	1543	1681	1885	2108	2223	2513	2730	2890	3206	3255
32-1/2"	32-1/2"	28-5/8"	28-5/8"	30-5/8"	26-3/4"	30-3/4"	32-3/4"	30-3/4"	32-3/4"	36-3/4"	44-3/4"	44-3/4"
1100	1190	1360	1540	1680	1880	2100	2220	2510	2720	2880	3200	3250
(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
12.8	14.4	15.9	17.7	19	21	23	26	29	30	33	36	38
1212	1374	1488	1745	1897	2070	2294	2552	2748	3024	3287	3528	3582
28-1/2"	30-1/2"	24-5/8"	24-5/8"	28-5/8"	30-5/8"	26-3/4"	30-3/4"	30-3/4"	30-3/4"	32-3/4"	36-3/4"	36-3/4"
1210	1370	1480	1740	1890	2070	2290	2550	2740	3020	3280	3520	3570
(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT		2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
40	16	Wt(plf)	7.7	9.3	11.0	12.5	14.0	16.1	18.0	19.8	24
		W360(plf)	139	181	213	237	274	295	332	376	437
		N-ds	24-3/8"	32-3/8"	40-3/8"	28-1/2"	34-1/2"	36-1/2"	42-1/2"	34-5/8"	40-5/8"
		Ieff(in4)	207	270	317	353	409	439	495	560	651
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(3)H	(3)H
	18	Wt(plf)	6.6	7.5	8.7	9.9	11.9	13.1	14.3	16.3	18.1
		W360(plf)	144	176	212	244	281	308	341	383	425
		N-ds	22-3/8"	28-3/8"	36-3/8"	44-3/8"	30-1/2"	34-1/2"	40-1/2"	44-1/2"	46-1/2"
		Ieff(in4)	214	262	316	363	418	459	508	571	633
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H	(2)H
	20	Wt(plf)	6.1	7.0	8.1	8.8	10.2	12.4	13.2	14.5	17.5
		W360(plf)	160	203	245	269	314	358	377	429	515
		N-ds	20-3/8"	26-3/8"	32-3/8"	38-3/8"	46-3/8"	32-1/2"	34-1/2"	40-1/2"	48-1/2"
		Ieff(in4)	238	303	365	400	468	533	561	639	767
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H
	22	Wt(plf)	6.4	6.8	7.7	8.6	9.7	11.2	12.4	13.2	16.3
		W360(plf)	190	227	273	308	347	390	428	462	575
		N-ds	20-3/8"	24-3/8"	30-3/8"	36-3/8"	40-3/8"	28-1/2"	32-1/2"	34-1/2"	44-1/2"
		Ieff(in4)	283	338	407	459	517	581	638	689	856
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H
	24	Wt(plf)	6.1	6.9	7.5	8.3	9.3	10.9	11.9	12.4	15.6
		W360(plf)	194	266	299	343	383	441	481	515	636
		N-ds	20-3/8"	24-3/8"	28-3/8"	32-3/8"	38-3/8"	26-1/2"	30-1/2"	32-1/2"	40-1/2"
		Ieff(in4)	288	396	446	510	570	656	716	767	947
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(2)H
	26	Wt(plf)	6.2	6.7	7.3	8.0	9.1	10.7	11.6	12.0	14.8
		W360(plf)	223	281	328	369	424	487	529	568	694
		N-ds	20-3/8"	22-3/8"	26-3/8"	30-3/8"	36-3/8"	24-1/2"	28-1/2"	30-1/2"	36-1/2"
		Ieff(in4)	333	418	488	550	631	725	788	845	1030
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H	(2)H
	28	Wt(plf)	6.1	6.5	7.2	8.0	8.9	10.4	11.4	11.6	14.3
		W360(plf)	228	293	349	420	457	521	580	615	748
		N-ds	20-3/8"	20-3/8"	24-3/8"	30-3/8"	32-3/8"	22-1/2"	26-1/2"	28-1/2"	34-1/2"
		Ieff(in4)	339	436	519	625	681	776	864	916	1110
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H	(2)H
	30	Wt(plf)	6.3	6.7	7.3	7.9	9.0	10.1	11.1	11.4	14.0
		W360(plf)	256	329	392	441	514	562	624	665	797
		N-ds	20-3/8"	20-3/8"	24-3/8"	28-3/8"	32-3/8"	22-1/2"	24-1/2"	26-1/2"	30-1/2"
		Ieff(in4)	382	490	584	657	765	837	930	991	1190
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H	(2)H
	32	Wt(plf)	6.2	6.4	7.0	7.6	8.2	9.0	10.9	11.2	13.6
		W360(plf)	286	333	400	465	523	571	652	707	843
		N-ds	20-3/8"	20-3/8"	22-3/8"	26-3/8"	30-3/8"	32-3/8"	22-1/2"	24-1/2"	28-1/2"
		Ieff(in4)	425	496	595	693	780	850	971	1050	1260
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
24	28	29	33	36	37	42	46	52	54	63	64	71
563	657	705	842	938	964	1085	1177	1425	1442	1629	1629	1779
46-5/8"	42-3/4"	46-3/4"	50-3/4"	60-3/4"	58-3/4"	68-3/4"	78-3/4"	80-3/4"	80-3/4"	100-3/4"	100-3/4"	112-3/4"
839	979	1050	1250	1400	1440	1620	1750	2120	2150	2430	2430	2650
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X
20	24	27	28	33	36	38	43	48	54	55	59	66
567	648	727	809	919	1015	1057	1185	1374	1514	1514	1574	1744
42-5/8"	48-5/8"	42-3/4"	42-3/4"	50-3/4"	60-3/4"	58-3/4"	68-3/4"	68-3/4"	80-3/4"	80-3/4"	86-3/4"	100-3/4"
844	965	1080	1210	1370	1510	1570	1770	2050	2260	2260	2340	2600
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X
18.9	22	24	27	30	33	37	41	43	48	52	54	58
643	736	806	929	1023	1123	1281	1408	1548	1660	1795	1831	1905
38-5/8"	44-5/8"	50-5/8"	38-3/4"	42-3/4"	50-3/4"	58-3/4"	68-3/4"	60-3/4"	68-3/4"	80-3/4"	80-3/4"	86-3/4"
958	1100	1200	1380	1520	1670	1910	2100	2310	2470	2670	2730	2840
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)X	(1)X	(1)X
17.8	21	23	25	27	30	34	38	39	45	48	54	56
707	834	907	1035	1111	1223	1382	1542	1663	1860	1965	2169	2204
34-5/8"	40-5/8"	46-5/8"	34-3/4"	38-3/4"	42-3/4"	48-3/4"	58-3/4"	50-3/4"	60-3/4"	68-3/4"	80-3/4"	80-3/4"
1050	1240	1350	1540	1650	1820	2060	2300	2480	2770	2930	3230	3280
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X
17.8	20	22	24	26	29	33	35	39	42	45	50	52
824	909	1008	1123	1215	1346	1577	1631	1930	1986	2161	2327	2363
34-5/8"	36-5/8"	42-5/8"	40-5/8"	34-3/4"	38-3/4"	50-3/4"	48-3/4"	50-3/4"	50-3/4"	60-3/4"	68-3/4"	68-3/4"
1230	1350	1500	1670	1810	2010	2350	2430	2880	2960	3220	3470	3520
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X
17.1	18.5	20	23	25	29	31	35	36	41	45	47	52
885	965	1067	1223	1315	1544	1655	1871	2001	2237	2471	2514	2706
30-5/8"	34-5/8"	36-5/8"	36-5/8"	32-3/4"	38-3/4"	42-3/4"	48-3/4"	42-3/4"	50-3/4"	60-3/4"	60-3/4"	68-3/4"
1320	1440	1590	1820	1960	2300	2470	2790	2980	3330	3680	3740	4030
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X
16.4	18.3	20	23	25	28	30	32	36	41	43	47	49
940	1082	1208	1382	1487	1637	1768	1931	2255	2523	2562	2837	2879
28-5/8"	34-5/8"	36-5/8"	36-5/8"	32-3/4"	34-3/4"	38-3/4"	40-3/4"	42-3/4"	50-3/4"	50-3/4"	60-3/4"	60-3/4"
1400	1610	1800	2060	2220	2440	2630	2880	3360	3760	3820	4230	4290
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
15.9	17.6	20	22	24	27	28	33	34	38	43	45	49
991	1131	1247	1437	1576	1724	1850	2156	2290	2546	2856	2903	3211
26-5/8"	30-5/8"	34-5/8"	34-5/8"	30-3/4"	32-3/4"	34-3/4"	40-3/4"	36-3/4"	42-3/4"	50-3/4"	50-3/4"	60-3/4"
1480	1690	1860	2140	2350	2570	2760	3210	3410	3790	4250	4330	4780
(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
15.9	16.8	20	22	23	26	28	31	34	38	40	45	47
1096	1172	1379	1587	1619	1805	2044	2248	2523	2806	2849	3203	3249
26-5/8"	28-5/8"	34-5/8"	34-5/8"	26-3/4"	30-3/4"	34-3/4"	36-3/4"	36-3/4"	42-3/4"	42-3/4"	50-3/4"	50-3/4"
1630	1750	2050	2360	2410	2690	3040	3350	3760	4180	4240	4770	4840
(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT		2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
45	18	Wt(plf)	8.0	9.2	10.9	12.3	13.6	15.2	17.4	18.7	22
		W360(plf)	127	153	181	206	228	254	280	306	357
		N-ds	28-3/8"	36-3/8"	26-1/2"	32-1/2"	36-1/2"	44-1/2"	48-1/2"	54-1/2"	44-5/8"
		Ieff(in4)	269	325	385	438	484	538	593	649	757
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	20	Wt(plf)	7.5	8.6	9.7	11.0	12.1	14.6	16.3	17.6	21
		W360(plf)	145	175	205	232	259	294	321	354	418
		N-ds	26-3/8"	32-3/8"	40-3/8"	48-3/8"	56-3/8"	40-1/2"	44-1/2"	48-1/2"	40-5/8"
		Ieff(in4)	308	372	435	493	549	625	681	751	886
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	22	Wt(plf)	7.0	7.9	9.1	10.3	12.5	13.8	15.5	16.5	20.0
		W360(plf)	160	193	227	261	303	336	364	398	482
		N-ds	24-3/8"	30-3/8"	38-3/8"	46-3/8"	32-1/2"	36-1/2"	40-1/2"	44-1/2"	38-5/8"
		Ieff(in4)	340	410	482	553	643	712	772	843	1020
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	24	Wt(plf)	6.8	7.7	8.9	9.6	12.1	13.1	14.8	15.7	19.1
		W360(plf)	173	213	257	284	341	376	407	442	535
		N-ds	24-3/8"	28-3/8"	36-3/8"	40-3/8"	30-1/2"	34-1/2"	36-1/2"	40-1/2"	34-5/8"
		Ieff(in4)	366	451	544	602	724	798	863	938	1130
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	26	Wt(plf)	6.4	7.3	8.3	9.3	11.3	12.8	14.0	15.5	18.9
		W360(plf)	183	234	282	315	377	415	448	514	621
		N-ds	24-3/8"	26-3/8"	32-3/8"	38-3/8"	28-1/2"	32-1/2"	34-1/2"	40-1/2"	34-5/8"
		Ieff(in4)	388	496	599	669	800	880	951	1090	1320
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	28	Wt(plf)	6.5	7.1	8.0	9.2	10.7	12.3	13.5	14.8	17.9
		W360(plf)	209	250	301	346	398	454	488	556	663
		N-ds	24-3/8"	24-3/8"	30-3/8"	36-3/8"	24-1/2"	30-1/2"	30-1/2"	36-1/2"	30-5/8"
		Ieff(in4)	444	530	639	734	844	962	1030	1180	1410
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	30	Wt(plf)	6.4	7.3	7.8	8.9	10.8	11.8	13.1	14.4	16.8
		W360(plf)	215	282	319	371	450	489	526	596	698
		N-ds	24-3/8"	24-3/8"	28-3/8"	32-3/8"	24-1/2"	28-1/2"	28-1/2"	34-1/2"	38-1/2"
		Ieff(in4)	456	599	676	787	955	1040	1120	1260	1480
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(2)H	(2)H	(2)H
	32	Wt(plf)	6.5	7.0	7.8	8.7	9.6	10.8	12.3	13.9	16.1
		W360(plf)	230	290	356	408	456	514	574	633	736
		N-ds	24-3/8"	24-3/8"	28-3/8"	32-3/8"	38-3/8"	42-3/8"	30-1/2"	30-1/2"	34-1/2"
		Ieff(in4)	488	614	756	865	968	1090	1220	1340	1560
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(2)H	(2)H
	36	Wt(plf)	6.3	6.9	7.5	8.8	9.8	11.0	11.9	13.2	15.2
		W360(plf)	252	323	385	471	517	577	642	699	837
		N-ds	24-3/8"	24-3/8"	24-3/8"	30-3/8"	32-3/8"	24-1/2"	26-1/2"	26-1/2"	32-1/2"
		Ieff(in4)	534	686	816	999	1100	1220	1360	1480	1780
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(2)H	(2)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
25	31	31	36	40	41	49	52	56	63	70	71	79
477	576	584	701	783	791	933	981	1107	1222	1340	1340	1463
52-5/8"	52-3/4"	52-3/4"	58-3/4"	66-3/4"	66-3/4"	88-3/4"	88-3/4"	82-3/4"	96-3/4"	110-3/4"	110-3/4"	124-3/4"
1010	1220	1240	1490	1660	1680	1980	2080	2350	2590	2840	2840	3100
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
23	27	31	33	37	41	45	52	54	58	66	71	75
548	615	712	779	882	963	1054	1196	1313	1371	1523	1628	1676
48-5/8"	42-3/4"	52-3/4"	48-3/4"	56-3/4"	66-3/4"	74-3/4"	88-3/4"	76-3/4"	82-3/4"	96-3/4"	110-3/4"	110-3/4"
1160	1300	1510	1650	1870	2040	2240	2540	2780	2910	3230	3450	3550
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(1)X
22	27	28	33	34	38	42	48	50	56	61	66	74
621	734	784	928	956	1062	1194	1318	1439	1592	1672	1814	1996
44-5/8"	42-3/4"	46-3/4"	48-3/4"	46-3/4"	56-3/4"	66-3/4"	74-3/4"	66-3/4"	76-3/4"	82-3/4"	96-3/4"	110-3/4"
1320	1560	1660	1970	2030	2250	2530	2800	3050	3380	3550	3850	4230
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X
21	25	27	30	33	38	39	45	50	56	59	62	70
694	810	872	997	1098	1245	1289	1461	1681	1862	1905	1957	2181
40-5/8"	38-3/4"	42-3/4"	40-3/4"	48-3/4"	56-3/4"	56-3/4"	66-3/4"	66-3/4"	76-3/4"	76-3/4"	82-3/4"	96-3/4"
1470	1720	1850	2120	2330	2640	2730	3100	3570	3950	4040	4150	4630
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X
20	23	25	29	30	34	38	42	45	50	55	59	61
739	862	948	1088	1161	1305	1460	1640	1794	1942	2145	2196	2257
36-5/8"	46-5/8"	38-3/4"	38-3/4"	40-3/4"	46-3/4"	56-3/4"	66-3/4"	56-3/4"	66-3/4"	76-3/4"	76-3/4"	82-3/4"
1570	1830	2010	2310	2460	2770	3100	3480	3810	4120	4550	4660	4790
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(1)X	(1)X
19.6	22	24	27	30	33	36	39	45	47	52	56	59
842	935	1008	1144	1322	1457	1535	1718	2038	2078	2241	2439	2498
36-5/8"	42-5/8"	44-5/8"	44-5/8"	40-3/4"	48-3/4"	46-3/4"	56-3/4"	56-3/4"	56-3/4"	66-3/4"	76-3/4"	76-3/4"
1790	1980	2140	2430	2800	3090	3260	3640	4320	4410	4750	5170	5300
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(1)X
18.7	21	24	26	29	31	35	39	42	47	49	53	59
877	982	1135	1267	1406	1499	1698	1934	2098	2333	2366	2519	2808
34-5/8"	38-5/8"	44-5/8"	34-3/4"	38-3/4"	40-3/4"	46-3/4"	56-3/4"	48-3/4"	56-3/4"	56-3/4"	66-3/4"	76-3/4"
1860	2080	2410	2690	2980	3180	3600	4100	4450	4950	5020	5340	5960
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)X	(1)X	(1)X
17.9	21	23	26	28	31	36	38	43	45	50	55	56
914	1095	1202	1352	1467	1606	1926	1973	2331	2374	2630	2866	2866
30-5/8"	38-5/8"	40-5/8"	40-5/8"	34-3/4"	36-3/4"	46-3/4"	46-3/4"	48-3/4"	48-3/4"	56-3/4"	66-3/4"	66-3/4"
1940	2320	2550	2870	3110	3410	4080	4180	4940	5040	5580	6080	6080
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)H	(1)X	(1)X	(1)X
17.0	20	22	24	27	28	32	37	40	44	45	50	53
1024	1206	1352	1522	1669	1781	1961	2350	2527	2853	2853	3161	3235
28-5/8"	34-5/8"	36-5/8"	30-3/4"	32-3/4"	34-3/4"	36-3/4"	46-3/4"	40-3/4"	48-3/4"	48-3/4"	56-3/4"	56-3/4"
2170	2560	2870	3230	3540	3780	4160	4980	5360	6050	6050	6700	6860
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
50	20	Wt(plf)	8.7	10.5	11.8	13.6	15.3	17.4	18.7	21	25
		W360(plf)	122	155	177	204	227	251	265	297	356
		N-ds	30-3/8"	26-1/2"	30-1/2"	36-1/2"	44-1/2"	48-1/2"	54-1/2"	40-5/8"	50-5/8"
		Ieff(in4)	354	451	514	594	662	729	772	863	1040
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(3)H	(3)H	(3)H
	22	Wt(plf)	8.2	9.6	10.7	13.0	14.5	16.3	17.6	19.9	24
		W360(plf)	135	171	197	233	259	282	302	343	411
		N-ds	28-3/8"	38-3/8"	46-3/8"	34-1/2"	40-1/2"	44-1/2"	48-1/2"	38-5/8"	46-5/8"
		Ieff(in4)	393	498	574	679	753	821	878	999	1200
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	24	Wt(plf)	7.7	9.1	10.2	11.5	13.7	15.5	17.6	18.5	23
		W360(plf)	150	191	221	251	290	315	357	378	462
		N-ds	26-3/8"	36-3/8"	42-3/8"	52-3/8"	36-1/2"	40-1/2"	48-1/2"	46-1/2"	42-5/8"
		Ieff(in4)	435	556	644	731	845	917	1040	1100	1340
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	26	Wt(plf)	7.2	8.6	9.6	11.1	13.2	14.8	16.6	18.1	22
		W360(plf)	160	208	242	280	321	348	390	434	513
		N-ds	26-3/8"	32-3/8"	40-3/8"	48-3/8"	34-1/2"	36-1/2"	44-1/2"	46-1/2"	40-5/8"
		Ieff(in4)	467	604	705	815	934	1010	1130	1260	1490
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	28	Wt(plf)	7.4	8.1	9.2	10.5	12.8	13.9	15.9	17.2	21
		W360(plf)	184	222	262	296	351	389	423	466	566
		N-ds	26-3/8"	30-3/8"	38-3/8"	42-3/8"	32-1/2"	36-1/2"	40-1/2"	42-1/2"	36-5/8"
		Ieff(in4)	536	647	762	860	1020	1130	1230	1360	1650
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	30	Wt(plf)	6.9	7.8	9.2	11.0	12.3	14.1	15.0	16.7	19.6
		W360(plf)	191	236	290	333	380	431	455	506	604
		N-ds	26-3/8"	28-3/8"	36-3/8"	26-1/2"	30-1/2"	34-1/2"	36-1/2"	38-1/2"	34-5/8"
		Ieff(in4)	557	687	844	970	1110	1250	1320	1470	1760
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	32	Wt(plf)	6.9	7.6	8.6	10.0	11.8	12.9	14.7	16.3	19.5
		W360(plf)	215	251	304	361	407	448	485	562	673
		N-ds	26-3/8"	26-3/8"	32-3/8"	40-3/8"	28-1/2"	32-1/2"	34-1/2"	38-1/2"	34-5/8"
		Ieff(in4)	626	731	884	1050	1180	1300	1410	1630	1960
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	36	Wt(plf)	6.9	7.6	8.5	9.5	10.7	12.3	14.1	15.0	17.8
		W360(plf)	242	289	348	401	451	501	568	618	725
		N-ds	26-3/8"	26-3/8"	30-3/8"	36-3/8"	40-3/8"	28-1/2"	30-1/2"	32-1/2"	28-5/8"
		Ieff(in4)	705	840	1010	1170	1310	1460	1650	1800	2110
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	40	Wt(plf)	6.8	7.5	9.0	10.3	11.3	12.8	13.7	14.4	16.9
		W360(plf)	251	316	400	464	518	591	646	693	814
		N-ds	26-3/8"	26-3/8"	28-3/8"	32-3/8"	26-1/2"	26-1/2"	28-1/2"	30-1/2"	26-5/8"
		Ieff(in4)	731	920	1160	1350	1510	1720	1880	2020	2370
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(3)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"		5"		7 1/2"						
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 4.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3	
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15	
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot													
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**	
30	34	36	40	44	49	54	60	63	70	75	88	89	
505	559	590	689	732	816	879	985	1080	1203	1285	1457	1457	
52-3/4"	60-3/4"	60-3/4"	64-3/4"	72-3/4"	86-3/4"	92-3/4"	108-3/4"	94-3/4"	108-3/4"	122-3/4"	148-3/4"	148-3/4"	
1470	1630	1720	2000	2130	2370	2560	2860	3140	3500	3740	4240	4240	
(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X	
27	31	36	37	41	45	51	56	62	66	71	79	88	
530	615	707	762	833	905	1029	1092	1290	1343	1447	1583	1744	
42-3/4"	52-3/4"	60-3/4"	54-3/4"	64-3/4"	72-3/4"	86-3/4"	92-3/4"	94-3/4"	94-3/4"	108-3/4"	122-3/4"	148-3/4"	
1540	1790	2060	2220	2420	2630	2990	3180	3750	3910	4210	4610	5070	
(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X	
25	28	33	36	38	42	48	53	58	66	66	75	80	
606	667	760	877	905	1010	1119	1255	1398	1577	1587	1749	1861	
54-5/8"	46-3/4"	52-3/4"	56-3/4"	54-3/4"	64-3/4"	72-3/4"	86-3/4"	80-3/4"	94-3/4"	94-3/4"	108-3/4"	122-3/4"	
1760	1940	2210	2550	2630	2940	3250	3650	4070	4590	4620	5090	5410	
(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
24	27	33	33	38	42	48	53	56	61	66	74	76	
662	734	883	926	1049	1171	1298	1457	1576	1680	1838	2026	2026	
50-5/8"	42-3/4"	52-3/4"	46-3/4"	54-3/4"	64-3/4"	72-3/4"	86-3/4"	74-3/4"	80-3/4"	94-3/4"	108-3/4"	108-3/4"	
1930	2140	2570	2690	3050	3410	3780	4240	4580	4890	5350	5890	5890	
(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
23	27	30	33	35	39	44	50	56	59	62	70	76	
718	841	913	1059	1091	1235	1383	1536	1800	1865	1931	2157	2318	
46-5/8"	42-3/4"	56-5/8"	46-3/4"	46-3/4"	54-3/4"	64-3/4"	72-3/4"	74-3/4"	74-3/4"	80-3/4"	94-3/4"	108-3/4"	
2090	2450	2660	3080	3170	3590	4020	4470	5240	5430	5620	6280	6740	
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
22	25	27	31	35	38	41	45	50	56	59	66	70	
774	883	964	1096	1234	1372	1437	1611	1840	2058	2119	2376	2439	
42-5/8"	48-5/8"	42-3/4"	40-3/4"	46-3/4"	54-3/4"	54-3/4"	64-3/4"	64-3/4"	74-3/4"	74-3/4"	94-3/4"	94-3/4"	
2250	2570	2800	3190	3590	3990	4180	4690	5350	5990	6170	6910	7100	
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
22	25	29	31	35	36	41	46	48	53	60	66	71	
867	948	1114	1227	1382	1418	1610	1805	1933	2111	2370	2504	2731	
42-5/8"	36-3/4"	42-3/4"	40-3/4"	46-3/4"	46-3/4"	54-3/4"	64-3/4"	56-3/4"	64-3/4"	74-3/4"	80-3/4"	94-3/4"	
2520	2760	3240	3570	4020	4120	4690	5250	5620	6140	6890	7290	7950	
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X	
21	23	26	28	31	34	38	43	48	50	56	61	65	
976	1086	1189	1326	1453	1576	1778	2021	2349	2408	2642	2886	2959	
36-5/8"	40-5/8"	44-5/8"	34-3/4"	36-3/4"	40-3/4"	46-3/4"	54-3/4"	56-3/4"	56-3/4"	64-3/4"	74-3/4"	74-3/4"	
2840	3160	3460	3860	4230	4590	5170	5880	6840	7010	7690	8400	8610	
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X	
20	22	24	27	29	32	37	40	45	50	53	57	61	
1082	1199	1318	1481	1582	1733	2080	2161	2538	2841	2920	3123	3200	
34-5/8"	36-5/8"	34-3/4"	32-3/4"	34-3/4"	36-3/4"	46-3/4"	46-3/4"	48-3/4"	56-3/4"	56-3/4"	64-3/4"	64-3/4"	
3150	3490	3830	4310	4600	5040	6050	6290	7390	8270	8500	9090	9310	
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)X	(1)X	(1)X	

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1
		tc (in.)	2	2	2	2	2	2	2	2	2
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
55	24	Wt(plf)	9.2	10.7	12.2	13.6	15.4	17.6	19.1	22	26
		W360(plf)	139	165	197	219	244	269	288	335	389
		N-ds	32-3/8"	28-1/2"	32-1/2"	36-1/2"	44-1/2"	48-1/2"	52-1/2"	44-5/8"	50-5/8"
		Ieff(in4)	538	640	764	847	945	1040	1120	1300	1510
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(3)H
	26	Wt(plf)	8.6	9.6	11.2	13.1	14.6	17.6	19.2	21	25
		W360(plf)	150	177	215	242	269	314	337	373	435
		N-ds	30-3/8"	38-3/8"	48-3/8"	34-1/2"	40-1/2"	48-1/2"	52-1/2"	40-5/8"	46-5/8"
		Ieff(in4)	579	686	831	939	1040	1220	1300	1450	1680
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	28	Wt(plf)	8.2	9.1	10.3	12.6	13.9	16.6	18.2	20	24
		W360(plf)	159	193	224	265	294	339	367	413	476
		N-ds	28-3/8"	36-3/8"	42-3/8"	32-1/2"	36-1/2"	44-1/2"	46-1/2"	38-5/8"	42-5/8"
		Ieff(in4)	617	748	867	1030	1140	1310	1420	1600	1840
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	30	Wt(plf)	7.6	8.7	10.1	11.6	13.4	16.0	17.2	19.0	23
		W360(plf)	170	205	244	281	318	365	391	438	517
		N-ds	28-3/8"	32-3/8"	40-3/8"	48-3/8"	34-1/2"	40-1/2"	42-1/2"	46-1/2"	40-5/8"
		Ieff(in4)	656	795	945	1090	1230	1410	1510	1700	2000
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	32	Wt(plf)	7.7	8.9	10.0	11.5	13.4	15.2	17.2	19.0	23
		W360(plf)	181	235	275	317	359	389	441	495	584
		N-ds	28-3/8"	32-3/8"	40-3/8"	48-3/8"	34-1/2"	36-1/2"	42-1/2"	46-1/2"	40-5/8"
		Ieff(in4)	699	910	1070	1230	1390	1510	1710	1920	2260
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	34	Wt(plf)	7.6	8.4	9.8	11.9	13.0	15.0	16.0	17.8	21
		W360(plf)	202	244	293	346	382	435	461	516	617
		N-ds	28-3/8"	30-3/8"	38-3/8"	28-1/2"	32-1/2"	36-1/2"	40-1/2"	42-1/2"	36-5/8"
		Ieff(in4)	781	947	1130	1340	1480	1690	1790	2000	2390
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	36	Wt(plf)	7.8	9.3	10.9	12.4	13.6	15.5	17.0	19.3	21
		W360(plf)	206	276	321	378	417	473	508	596	657
		N-ds	28-3/8"	30-3/8"	36-3/8"	28-1/2"	28-1/2"	28-5/8"	28-5/8"	30-5/8"	34-5/8"
		Ieff(in4)	799	1070	1240	1460	1610	1830	1970	2310	2550
		Bridging	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	40	Wt(plf)	7.2	8.2	9.2	10.5	12.3	14.3	15.3	17.4	20
		W360(plf)	223	284	344	390	462	524	557	649	728
		N-ds	28-3/8"	28-3/8"	32-3/8"	38-3/8"	28-1/2"	30-1/2"	32-1/2"	38-1/2"	30-5/8"
		Ieff(in4)	864	1100	1330	1510	1790	2030	2160	2510	2820
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H
	44	Wt(plf)	7.9	8.4	9.7	10.8	12.5	13.4	14.8	16.3	19.4
		W360(plf)	269	322	391	450	512	557	621	686	812
		N-ds	28-3/8"	28-3/8"	30-3/8"	28-1/2"	28-1/2"	28-1/2"	30-1/2"	28-5/8"	28-5/8"
		Ieff(in4)	1040	1250	1510	1740	1980	2160	2410	2660	3150
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(2)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
31	36	39	41	45	50	55	62	70	75	79	89	92
538	619	678	731	795	882	954	1068	1255	1352	1413	1576	1618
52-3/4"	60-3/4"	68-3/4"	60-3/4"	70-3/4"	82-3/4"	90-3/4"	104-3/4"	106-3/4"	120-3/4"	120-3/4"	146-3/4"	146-3/4"
2080	2400	2630	2830	3080	3410	3690	4140	4860	5240	5470	6100	6270
(3)H	(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X
28	33	36	41	42	47	53	62	66	71	79	80	92
577	657	731	850	876	948	1083	1245	1360	1479	1641	1656	1881
46-3/4"	52-3/4"	60-3/4"	60-3/4"	60-3/4"	70-3/4"	82-3/4"	104-3/4"	92-3/4"	106-3/4"	120-3/4"	120-3/4"	146-3/4"
2230	2550	2830	3290	3390	3670	4190	4820	5270	5730	6350	6410	7280
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
27	33	36	38	42	46	53	58	66	66	75	80	84
628	756	841	901	1006	1090	1245	1320	1560	1582	1767	1900	1945
42-3/4"	52-3/4"	60-3/4"	52-3/4"	60-3/4"	70-3/4"	82-3/4"	90-3/4"	92-3/4"	92-3/4"	106-3/4"	120-3/4"	120-3/4"
2430	2930	3260	3490	3900	4220	4820	5110	6040	6130	6840	7360	8577
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
27	30	33	38	40	44	50	56	61	66	71	76	84
714	788	872	1023	1052	1169	1302	1460	1628	1795	1865	2023	2208
42-3/4"	46-3/4"	52-3/4"	52-3/4"	52-3/4"	60-3/4"	70-3/4"	82-3/4"	78-3/4"	92-3/4"	92-3/4"	106-3/4"	120-3/4"
2760	3050	3380	3960	4070	4530	5040	5650	6310	6950	7220	7840	8550
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
26	29	33	35	39	44	50	56	59	62	71	76	80
755	838	981	1044	1183	1315	1465	1644	1775	1853	2095	2274	2324
38-3/4"	42-3/4"	52-3/4"	46-3/4"	52-3/4"	60-3/4"	70-3/4"	82-3/4"	72-3/4"	78-3/4"	92-3/4"	106-3/4"	106-3/4"
2920	3250	3800	4040	4580	5090	5670	6360	6870	7180	8110	8800	9000
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
24	27	31	35	39	40	45	50	56	60	70	71	76
786	908	1002	1164	1318	1330	1513	1660	1931	2000	2334	2353	2532
44-5/8"	42-3/4"	46-3/4"	46-3/4"	52-3/4"	52-3/4"	60-3/4"	70-3/4"	72-3/4"	72-3/4"	92-3/4"	92-3/4"	106-3/4"
3040	3520	3880	4510	5110	5150	5860	6430	7480	7750	9040	9110	9810
(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
23	28	29	34	35	40	44	48	52	56	61	70	71
835	971	1048	1286	1298	1471	1648	1806	1956	2157	2304	2599	2599
34-3/4"	38-3/4"	42-3/4"	46-3/4"	46-3/4"	52-3/4"	60-3/4"	70-3/4"	62-3/4"	72-3/4"	78-3/4"	92-3/4"	92-3/4"
3230	3760	4060	4980	5030	5700	6380	6990	7570	8350	8920	10060	10060
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
22	26	28	32	37	38	43	48	51	56	64	66	76
920	1083	1177	1324	1580	1612	1835	2061	2184	2412	2728	2747	3173
36-5/8"	44-5/8"	38-3/4"	36-3/4"	46-3/4"	46-3/4"	52-3/4"	60-3/4"	54-3/4"	62-3/4"	72-3/4"	72-3/4"	92-3/4"
3560	4190	4560	5130	6120	6240	7110	7980	8460	9340	10570	10640	12290
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X
22	24	27	29	32	37	40	45	50	53	57	65	66
1060	1181	1298	1420	1556	1857	1933	2202	2540	2623	2834	3200	3200
38-5/8"	34-3/4"	36-3/4"	34-3/4"	36-3/4"	46-3/4"	46-3/4"	52-3/4"	54-3/4"	54-3/4"	62-3/4"	72-3/4"	72-3/4"
4100	4570	5030	5500	6030	7190	7490	8530	9830	10160	10980	12390	12390
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(1)H	(1)X	(1)X	(1)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT		2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1.5
		tc (in.)	2	2	2	2	2	2	2	2	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
60	24	Wt(plf)	10.6	12.6	14.4	16.2	18.6	20	24	25	30
		W360(plf)	121	149	173	194	220	231	262	287	398
		N-ds	38-3/8"	30-1/2"	36-1/2"	44-1/2"	54-1/2"	56-1/2"	48-5/8"	50-5/8"	52-3/4"
		Ieff(in4)	607	748	871	976	1110	1160	1310	1440	2000
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(3)H
	26	Wt(plf)	10.0	11.3	12.9	14.5	17.5	19.1	22	24	27
		W360(plf)	134	162	187	208	243	260	292	321	422
		N-ds	30-1/2"	30-1/2"	34-1/2"	40-1/2"	48-1/2"	52-1/2"	44-5/8"	46-5/8"	56-5/8"
		Ieff(in4)	671	812	941	1050	1220	1310	1470	1620	2120
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(3)H
	28	Wt(plf)	9.4	11.1	12.5	14.5	16.6	19.3	21	23	27
		W360(plf)	144	179	205	240	262	300	322	353	486
		N-ds	32-3/8"	30-1/2"	32-1/2"	40-1/2"	44-1/2"	52-1/2"	40-5/8"	42-5/8"	56-5/8"
		Ieff(in4)	724	901	1030	1210	1320	1510	1620	1770	2450
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(3)H
	30	Wt(plf)	8.8	10.3	11.4	13.8	16.6	18.3	20	22	26
		W360(plf)	152	192	218	260	300	324	349	385	526
		N-ds	30-3/8"	40-3/8"	48-3/8"	36-1/2"	44-1/2"	46-1/2"	52-1/2"	40-5/8"	52-5/8"
		Ieff(in4)	763	963	1100	1310	1510	1630	1760	1930	2650
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(3)H
	32	Wt(plf)	9.2	10.1	11.6	13.4	16.0	17.3	19.0	21	25
		W360(plf)	173	205	240	279	320	343	373	417	560
		N-ds	30-3/8"	38-3/8"	30-1/2"	34-1/2"	40-1/2"	42-1/2"	46-1/2"	36-5/8"	48-5/8"
		Ieff(in4)	868	1030	1210	1400	1610	1720	1870	2100	2810
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(3)H
	36	Wt(plf)	8.2	9.7	11.6	13.2	15.1	16.7	18.5	21.0	23
		W360(plf)	188	232	288	322	377	409	443	501	649
		N-ds	30-3/8"	32-3/8"	30-1/2"	30-1/2"	36-1/2"	38-1/2"	30-5/8"	34-5/8"	46-5/8"
		Ieff(in4)	947	1160	1450	1620	1890	2060	2230	2520	3270
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H
	40	Wt(plf)	8.7	10.0	11.5	13.0	14.7	17.1	18.7	19.6	22
		W360(plf)	214	263	317	372	420	481	516	565	745
		N-ds	30-3/8"	30-3/8"	38-3/8"	30-1/2"	30-1/2"	30-5/8"	30-5/8"	30-5/8"	42-5/8"
		Ieff(in4)	1080	1320	1590	1870	2110	2420	2600	2840	3740
		Bridging	(1)X+(3)H	(1)X+(3)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H
	44	Wt(plf)	9.0	9.9	12.2	14.1	15.1	16.4	18.0	19.6	23
		W360(plf)	235	293	368	420	480	535	576	635	849
		N-ds	30-3/8"	30-3/8"	30-1/2"	30-1/2"	30-1/2"	32-1/2"	30-5/8"	30-5/8"	38-5/8"
		Ieff(in4)	1180	1470	1850	2110	2420	2690	2890	3190	4270
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H	(3)H	(3)H	(2)H
	48	Wt(plf)	8.0	9.1	10.6	11.9	13.5	15.3	16.8	18.4	20
		W360(plf)	246	315	389	435	510	577	620	716	854
		N-ds	30-3/8"	30-3/8"	32-3/8"	38-3/8"	30-1/2"	30-1/2"	32-1/2"	38-1/2"	46-1/2"
		Ieff(in4)	1240	1590	1960	2190	2560	2900	3120	3600	4290
		Bridging	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(1)X+(2)H	(3)H	(3)H

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"	5"	7 1/2"								
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 4.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3	
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15	
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot													
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**	
36	39	43	49	52	58	67	74	75	88	92			
469	515	563	654	688	763	863	959	1027	1185	1261			
60-3/4"	68-3/4"	74-3/4"	82-3/4"	88-3/4"	104-3/4"	118-3/4"	134-3/4"	118-3/4"	144-3/4"	144-3/4"			
2360	2590	2830	3290	3460	3840	4340	4820	5160	5960	6340			
(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X			
34	36	41	45	50	54	62	70	75	88	89	93		
527	557	624	706	784	826	943	1055	1195	1380	1429	1487		
60-3/4"	60-3/4"	66-3/4"	68-3/4"	82-3/4"	88-3/4"	104-3/4"	118-3/4"	118-3/4"	144-3/4"	144-3/4"	144-3/4"		
2650	2800	3140	3550	3940	4150	4740	5300	6010	6940	7190	7470		
(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X		
31	36	41	45	50	52	61	69	71	79	89	93	96	
557	641	719	813	903	928	1070	1216	1294	1437	1643	1709	1759	
52-3/4"	60-3/4"	66-3/4"	68-3/4"	82-3/4"	82-3/4"	104-3/4"	118-3/4"	104-3/4"	118-3/4"	144-3/4"	144-3/4"	144-3/4"	
2800	3220	3610	4090	4540	4660	5380	6110	6510	7220	8260	8590	8840	
(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X	
31	36	38	42	46	52	56	65	71	75	80	93	94	
635	731	757	876	951	1057	1128	1294	1472	1535	1687	1944	1967	
52-3/4"	60-3/4"	58-3/4"	60-3/4"	68-3/4"	82-3/4"	88-3/4"	104-3/4"	104-3/4"	104-3/4"	118-3/4"	144-3/4"	144-3/4"	
3190	3670	3810	4400	4780	5320	5670	6510	7400	7720	8480	9770	9890	
(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X	
30	33	38	42	44	48	56	66	67	75	79	85	96	
668	752	855	988	1012	1100	1256	1462	1547	1729	1821	1968	2255	
56-5/8"	52-3/4"	58-3/4"	60-3/4"	60-3/4"	68-3/4"	82-3/4"	104-3/4"	90-3/4"	104-3/4"	104-3/4"	118-3/4"	144-3/4"	
3360	3780	4300	4970	5090	5530	6310	7350	7780	8690	9160	9900	11340	
(3)H	(3)H	(3)H	(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	(2)X	
27	31	33	38	40	44	50	56	61	67	71	76	84	
774	855	947	1108	1139	1267	1414	1586	1760	1942	2048	2229	2461	
42-3/4"	46-3/4"	52-3/4"	52-3/4"	52-3/4"	60-3/4"	68-3/4"	82-3/4"	76-3/4"	90-3/4"	90-3/4"	104-3/4"	118-3/4"	
3890	4300	4760	5570	5730	6370	7110	7980	8850	9760	10290	11210	12380	
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
25	29	31	35	40	41	46	52	59	62	70	72	80	
830	976	1045	1211	1372	1403	1575	1756	2050	2144	2462	2486	2767	
36-3/4"	42-3/4"	46-3/4"	46-3/4"	52-3/4"	52-3/4"	60-3/4"	68-3/4"	70-3/4"	76-3/4"	90-3/4"	90-3/4"	104-3/4"	
4170	4910	5250	6090	6900	7050	7920	8830	10310	10780	12380	12500	13910	
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
25	29	32	35	38	42	48	52	55	63	66	74	75	
938	1096	1201	1332	1479	1673	1908	1973	2203	2495	2644	2982	3008	
40-5/8"	38-3/4"	40-3/4"	40-3/4"	46-3/4"	52-3/4"	60-3/4"	60-3/4"	60-3/4"	70-3/4"	76-3/4"	90-3/4"	90-3/4"	
4720	5510	6040	6700	7440	8410	9590	9920	11080	12540	13290	14990	15120	
(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	
24	27	29	32	37	39	45	51	53	57	66	67	77	
1052	1156	1257	1409	1683	1718	1987	2229	2366	2561	2935	2960	3459	
40-5/8"	44-5/8"	38-3/4"	36-3/4"	46-3/4"	46-3/4"	52-3/4"	60-3/4"	54-3/4"	60-3/4"	70-3/4"	70-3/4"	90-3/4"	
5290	5810	6320	7090	8460	8640	9990	11210	11900	12880	14760	14880	17390	
(3)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)H	(2)X	(2)X	(2)X	

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1.5
		tc (in.)	2	2	2	2	2	2	2	2	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
65	30	Wt(plf)	10.0	11.5	13.2	15.7	17.9	21	23	25	31
		W360(plf)	138	168	195	229	253	291	304	340	481
		N-ds	36-3/8"	34-1/2"	34-1/2"	44-1/2"	48-1/2"	40-5/8"	44-5/8"	46-5/8"	52-3/4"
		Ieff(in4)	885	1070	1240	1470	1620	1860	1940	2170	3070
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	32	Wt(plf)	9.8	11.3	14.0	15.6	18.1	19.9	22	25	28
		W360(plf)	148	183	226	253	290	312	337	391	494
		N-ds	34-3/8"	34-1/2"	34-1/2"	40-1/2"	46-1/2"	52-1/2"	40-5/8"	48-5/8"	56-5/8"
		Ieff(in4)	947	1170	1450	1620	1850	2000	2160	2500	3160
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	34	Wt(plf)	9.9	10.9	12.7	14.3	16.9	18.9	21	24	27
		W360(plf)	166	196	235	261	301	331	355	412	533
		N-ds	34-3/8"	34-1/2"	34-1/2"	36-1/2"	44-1/2"	46-1/2"	38-5/8"	42-5/8"	42-3/4"
		Ieff(in4)	1060	1250	1500	1670	1930	2120	2270	2630	3410
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	36	Wt(plf)	9.1	10.8	12.4	14.9	16.0	18.9	20	23	26
		W360(plf)	170	216	249	299	317	369	396	438	585
		N-ds	34-3/8"	40-3/8"	34-1/2"	36-1/2"	40-1/2"	46-1/2"	38-5/8"	40-5/8"	52-5/8"
		Ieff(in4)	1090	1380	1590	1910	2020	2360	2530	2800	3740
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	38	Wt(plf)	9.3	10.5	11.7	13.8	16.2	18.0	19.7	22	26
		W360(plf)	189	224	259	305	351	382	413	463	617
		N-ds	34-3/8"	38-3/8"	46-3/8"	34-1/2"	40-1/2"	42-1/2"	34-5/8"	36-5/8"	38-3/4"
		Ieff(in4)	1210	1430	1660	1950	2240	2440	2640	2960	3950
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	40	Wt(plf)	9.0	10.4	12.7	14.0	15.6	18.3	20.0	22	25
		W360(plf)	193	236	293	327	367	424	465	516	669
		N-ds	34-3/8"	36-3/8"	46-3/8"	34-1/2"	34-1/2"	34-5/8"	34-5/8"	38-5/8"	48-5/8"
		Ieff(in4)	1240	1510	1870	2090	2350	2710	2970	3300	4270
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	44	Wt(plf)	8.8	10.7	11.8	14.2	16.2	17.8	18.9	20	23
		W360(plf)	217	271	320	377	427	481	512	565	712
		N-ds	34-3/8"	34-3/8"	40-3/8"	34-1/2"	34-1/2"	38-1/2"	42-1/2"	46-1/2"	40-5/8"
		Ieff(in4)	1390	1730	2050	2410	2730	3070	3270	3610	4550
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X
	48	Wt(plf)	9.4	11.4	13.8	14.8	15.9	18.1	19.6	21	26
		W360(plf)	240	300	366	425	473	537	579	640	860
		N-ds	34-3/8"	34-3/8"	34-1/2"	34-1/2"	34-1/2"	34-1/2"	38-1/2"	34-3/4"	34-3/4"
		Ieff(in4)	1540	1920	2340	2720	3020	3440	3700	4090	5500
		Bridging	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X
	52	Wt(plf)	9.5	10.3	11.5	13.1	15.1	17.2	17.8	18.7	22
		W360(plf)	252	314	384	435	509	578	606	660	868
		N-ds	34-3/8"	34-3/8"	36-3/8"	34-1/2"	34-1/2"	34-1/2"	34-1/2"	38-1/2"	38-5/8"
		Ieff(in4)	1610	2010	2450	2780	3260	3690	3870	4220	5550
		Bridging	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
36	41	45	50	52	60	63	71	79	89	93		
567	637	696	802	825	943	979	1095	1270	1428	1515		
60-3/4"	66-3/4"	74-3/4"	78-3/4"	78-3/4"	100-3/4"	100-3/4"	116-3/4"	116-3/4"	142-3/4"	142-3/4"		
3620	4070	4450	5130	5270	6030	6260	7000	8120	9130	9690		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X		
32	36	41	45	52	56	62	70	74	80	92	93	
576	653	732	827	933	986	1108	1240	1347	1457	1711	1733	
66-5/8"	60-3/4"	66-3/4"	66-3/4"	78-3/4"	86-3/4"	100-3/4"	116-3/4"	102-3/4"	116-3/4"	142-3/4"	142-3/4"	
3680	4170	4680	5290	5960	6310	7080	7920	8610	9310	10940	11080	
(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
33	38	42	44	48	54	63	66	75	80	93	96	97
656	747	836	886	965	1076	1243	1297	1508	1632	1916	1974	1997
52-3/4"	58-3/4"	66-3/4"	60-3/4"	66-3/4"	78-3/4"	100-3/4"	100-3/4"	102-3/4"	116-3/4"	142-3/4"	142-3/4"	142-3/4"
4200	4770	5340	5660	6170	6880	7950	8290	9640	10430	12250	12620	12760
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
32	36	38	43	48	54	58	66	74	75	84	93	97
719	814	844	973	1074	1197	1276	1445	1676	1701	1913	2156	2219
66-5/8"	60-3/4"	58-3/4"	60-3/4"	66-3/4"	78-3/4"	86-3/4"	100-3/4"	102-3/4"	102-3/4"	116-3/4"	142-3/4"	142-3/4"
4590	5210	5390	6220	6860	7650	8160	9230	10710	10880	12230	13780	14190
(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
31	35	39	44	46	51	57	66	71	76	85	88	97
739	836	948	1088	1115	1218	1369	1597	1721	1878	2110	2168	2449
46-3/4"	50-3/4"	58-3/4"	60-3/4"	60-3/4"	66-3/4"	78-3/4"	100-3/4"	88-3/4"	102-3/4"	116-3/4"	116-3/4"	142-3/4"
4730	5340	6060	6960	7130	7780	8750	10210	11000	12000	13490	13860	15650
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
29	33	38	40	44	50	57	61	67	71	80	84	88
756	901	1024	1085	1207	1337	1503	1612	1840	1914	2165	2340	2402
52-5/8"	52-3/4"	58-3/4"	52-3/4"	60-3/4"	66-3/4"	78-3/4"	86-3/4"	88-3/4"	88-3/4"	102-3/4"	116-3/4"	116-3/4"
4840	5760	6540	6930	7720	8550	9610	10310	11760	12230	13840	14960	15350
(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
27	31	35	40	41	46	51	59	62	71	72	80	86
841	975	1102	1283	1312	1463	1612	1851	1998	2262	2321	2585	2792
48-5/8"	46-3/4"	50-3/4"	52-3/4"	52-3/4"	60-3/4"	66-3/4"	78-3/4"	74-3/4"	88-3/4"	88-3/4"	102-3/4"	116-3/4"
5380	6230	7050	8200	8390	9350	10300	11830	12770	14460	14840	16520	17840
(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
28	32	35	38	44	46	52	56	63	66	74	78	83
950	1106	1198	1364	1566	1599	1812	1968	2291	2401	2746	2814	3070
34-3/4"	40-3/4"	44-3/4"	46-3/4"	52-3/4"	52-3/4"	60-3/4"	66-3/4"	68-3/4"	74-3/4"	88-3/4"	88-3/4"	102-3/4"
6070	7070	7660	8720	10010	10220	11580	12580	14650	15350	17550	17990	19620
(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
25	29	32	37	39	43	49	56	57	65	69	77	78
982	1145	1258	1535	1569	1774	1996	2246	2330	2639	2796	3155	3181
34-3/4"	38-3/4"	40-3/4"	46-3/4"	46-3/4"	52-3/4"	60-3/4"	66-3/4"	60-3/4"	68-3/4"	74-3/4"	88-3/4"	88-3/4"
6280	7320	8040	9810	10030	11340	12760	14360	14890	16870	17870	20170	20330
(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1	1	1.5
		tc (in.)	2	2	2	2	2	2	2	2	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
70	32	Wt(plf)	11.2	13.3	15.5	17.8	19.3	22	25	27	31
		W360(plf)	134	172	203	230	247	277	299	329	437
		N-ds	38-3/8"	36-1/2"	40-1/2"	48-1/2"	52-1/2"	44-5/8"	46-5/8"	52-5/8"	52-3/4"
		Ieff(in4)	1070	1370	1620	1840	1970	2210	2390	2620	3490
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	34	Wt(plf)	10.7	12.6	15.0	16.9	18.4	22	24	27	32
		W360(plf)	143	182	215	242	262	298	320	370	499
		N-ds	36-3/8"	48-3/8"	36-1/2"	44-1/2"	46-1/2"	40-5/8"	42-5/8"	52-5/8"	66-5/8"
		Ieff(in4)	1140	1460	1720	1930	2090	2380	2550	2950	3980
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	36	Wt(plf)	10.8	12.4	14.3	16.0	18.4	20	23	26	31
		W360(plf)	159	193	228	255	292	315	352	395	547
		N-ds	36-3/8"	46-3/8"	36-1/2"	40-1/2"	46-1/2"	52-1/2"	42-5/8"	48-5/8"	52-3/4"
		Ieff(in4)	1270	1540	1820	2030	2330	2520	2810	3150	4370
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	38	Wt(plf)	10.0	12.0	13.8	16.7	18.4	22	23	24	29
		W360(plf)	165	206	240	289	313	366	383	416	557
		N-ds	36-3/8"	42-3/8"	36-1/2"	38-1/2"	36-5/8"	38-5/8"	42-5/8"	44-5/8"	46-3/4"
		Ieff(in4)	1320	1650	1910	2310	2500	2920	3060	3320	4450
		Bridging	(5)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X
	40	Wt(plf)	10.1	11.4	13.9	15.3	17.4	19.3	21	24	28
		W360(plf)	182	214	264	294	334	363	394	458	582
		N-ds	36-3/8"	36-1/2"	36-1/2"	36-1/2"	42-1/2"	46-1/2"	36-5/8"	44-5/8"	42-3/4"
		Ieff(in4)	1450	1710	2110	2350	2670	2900	3150	3660	4650
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	44	Wt(plf)	9.6	11.0	13.1	14.8	16.6	18.6	21	24	26
		W360(plf)	201	240	297	333	376	409	449	522	652
		N-ds	36-3/8"	38-3/8"	48-3/8"	36-1/2"	38-1/2"	36-5/8"	36-5/8"	42-5/8"	38-3/4"
		Ieff(in4)	1610	1920	2370	2660	3000	3270	3580	4170	5200
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	48	Wt(plf)	9.6	11.1	13.1	15.2	17.1	18.2	20.0	22	25
		W360(plf)	220	272	323	380	429	457	521	584	720
		N-ds	36-3/8"	36-3/8"	36-1/2"	36-1/2"	36-1/2"	38-1/2"	46-1/2"	38-5/8"	36-3/4"
		Ieff(in4)	1760	2170	2580	3040	3430	3650	4160	4660	5740
		Bridging	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X
	52	Wt(plf)	10.2	13.1	14.1	15.3	17.4	19.6	22	23	26
		W360(plf)	243	309	365	420	476	543	594	657	804
		N-ds	36-3/8"	36-3/8"	36-1/2"	36-1/2"	36-1/2"	38-1/2"	36-5/8"	36-5/8"	34-3/4"
		Ieff(in4)	1940	2460	2910	3350	3800	4340	4740	5240	6420
		Bridging	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X
	56	Wt(plf)	12.2	12.8	14.0	15.4	16.6	17.8	18.8	21	25
		W360(plf)	300	323	388	453	504	562	598	666	885
		N-ds	36-3/8"	36-3/8"	38-3/8"	36-1/2"	36-1/2"	36-1/2"	38-1/2"	36-5/8"	34-3/4"
		Ieff(in4)	2400	2580	3100	3620	4020	4490	4780	5310	7060
		Bridging	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"		5"		7 1/2"						
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 4.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3	
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15	
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot													
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**	
36	41	49	52	60	62	70	79	88	92				
515	579	683	740	846	870	976	1087	1273	1328				
60-3/4"	66-3/4"	84-3/4"	76-3/4"	98-3/4"	98-3/4"	114-3/4"	130-3/4"	140-3/4"	140-3/4"				
4110	4620	5450	5910	6750	6950	7790	8680	10170	10610				
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X				
36	42	47	52	57	63	71	80	81	94	97			
579	662	721	831	880	978	1097	1222	1292	1490	1567			
60-3/4"	66-3/4"	74-3/4"	76-3/4"	84-3/4"	98-3/4"	114-3/4"	130-3/4"	114-3/4"	140-3/4"	140-3/4"			
4620	5280	5760	6630	7020	7810	8760	9750	10310	11900	12510			
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X			
36	41	45	48	54	58	66	75	80	92	94			
645	724	794	854	953	1007	1142	1280	1438	1660	1716			
60-3/4"	66-3/4"	74-3/4"	66-3/4"	76-3/4"	84-3/4"	98-3/4"	114-3/4"	114-3/4"	140-3/4"	140-3/4"			
5150	5780	6340	6820	7610	8040	9120	10220	11480	13250	13700			
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X			
33	38	43	47	52	54	65	71	75	84	93	97		
651	741	830	932	1038	1068	1265	1383	1493	1652	1897	1954		
52-3/4"	58-3/4"	66-3/4"	66-3/4"	76-3/4"	76-3/4"	98-3/4"	114-3/4"	100-3/4"	114-3/4"	140-3/4"	140-3/4"		
5200	5920	6630	7440	8290	8520	10100	11040	11920	13190	15140	15600		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X		
33	38	43	46	50	56	66	70	76	84	94	97	102	
717	816	914	978	1069	1191	1393	1453	1641	1816	2084	2148	2222	
52-3/4"	58-3/4"	66-3/4"	60-3/4"	66-3/4"	76-3/4"	98-3/4"	98-3/4"	100-3/4"	114-3/4"	140-3/4"	140-3/4"	140-3/4"	
5720	6510	7290	7810	8540	9510	11120	11600	13100	14500	16640	17150	17740	
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
31	35	40	45	50	52	59	67	71	80	85	89	102	
781	883	1003	1148	1273	1286	1478	1690	1813	2021	2221	2283	2640	
46-3/4"	50-3/4"	58-3/4"	60-3/4"	66-3/4"	66-3/4"	76-3/4"	98-3/4"	86-3/4"	100-3/4"	114-3/4"	114-3/4"	140-3/4"	
6230	7050	8000	9160	10160	10270	11800	13490	14470	16130	17730	18220	21070	
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
30	35	37	42	46	51	57	61	71	72	81	86	89	
862	1031	1062	1230	1372	1501	1687	1753	2112	2140	2419	2614	2685	
42-3/4"	50-3/4"	50-3/4"	52-3/4"	60-3/4"	66-3/4"	76-3/4"	76-3/4"	86-3/4"	86-3/4"	100-3/4"	114-3/4"	114-3/4"	
6880	8230	8480	9820	10950	11980	13470	14000	16860	17080	19310	20870	21430	
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
31	35	38	44	46	52	55	63	64	75	78	83	88	
956	1108	1234	1451	1483	1668	1815	2060	2140	2503	2604	2842	3073	
38-3/4"	44-3/4"	50-3/4"	52-3/4"	52-3/4"	60-3/4"	66-3/4"	76-3/4"	68-3/4"	86-3/4"	86-3/4"	100-3/4"	114-3/4"	
7630	8850	9850	11580	11840	13310	14490	16450	17080	19990	20790	22690	24530	
(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
28	32	35	39	44	46	52	58	66	69	77	79	85	
990	1153	1254	1441	1630	1669	1876	2082	2415	2531	2893	2920	3235	
36-3/4"	40-3/4"	44-3/4"	46-3/4"	52-3/4"	52-3/4"	60-3/4"	66-3/4"	68-3/4"	72-3/4"	86-3/4"	86-3/4"	100-3/4"	
7900	9200	10010	11500	13010	13320	14970	16620	19280	20210	23100	23310	25830	
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1	1.5	1.5	1.5
		tc (in.)	2	2	2	2	2	2	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
75	34	Wt(plf)	11.6	14.3	16.0	18.6	22	25	26	30	35
		W360(plf)	131	168	188	217	245	278	323	383	443
		N-ds	40-3/8"	38-1/2"	38-1/2"	46-1/2"	40-5/8"	48-5/8"	54-5/8"	64-5/8"	76-5/8"
		Ieff(in4)	1280	1650	1840	2130	2410	2730	3170	3760	4350
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(3)X
	38	Wt(plf)	11.4	13.2	15.0	16.9	20.0	23	24	26	32
		W360(plf)	152	186	218	245	286	309	377	416	503
		N-ds	38-3/8"	38-1/2"	38-1/2"	44-1/2"	52-1/2"	40-5/8"	50-5/8"	52-5/8"	66-5/8"
		Ieff(in4)	1490	1830	2140	2400	2800	3030	3700	4090	4940
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(3)X
	40	Wt(plf)	11.2	13.3	15.3	17.1	19.3	22	25	27	33
		W360(plf)	159	203	240	270	297	337	415	459	554
		N-ds	38-3/8"	48-3/8"	38-1/2"	44-1/2"	46-1/2"	40-5/8"	50-5/8"	52-5/8"	66-5/8"
		Ieff(in4)	1560	1990	2360	2650	2920	3310	4080	4500	5440
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	42	Wt(plf)	11.1	12.6	14.6	16.4	19.4	22	23	25	30
		W360(plf)	174	212	250	282	330	358	432	474	558
		N-ds	38-3/8"	46-3/8"	38-1/2"	38-1/2"	38-5/8"	38-5/8"	46-5/8"	48-5/8"	56-5/8"
		Ieff(in4)	1710	2080	2450	2770	3240	3520	4240	4650	5480
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	44	Wt(plf)	10.7	13.2	15.6	17.8	18.8	22	23	27	30
		W360(plf)	180	228	268	319	340	396	453	530	608
		N-ds	38-3/8"	38-1/2"	38-1/2"	38-1/2"	42-1/2"	38-5/8"	40-5/8"	48-5/8"	56-5/8"
		Ieff(in4)	1760	2240	2630	3130	3330	3890	4450	5210	5970
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	48	Wt(plf)	10.5	12.1	13.5	15.7	18.5	20	23	25	29
		W360(plf)	196	249	286	338	390	427	525	573	676
		N-ds	38-3/8"	40-3/8"	48-3/8"	38-1/2"	42-1/2"	38-5/8"	42-5/8"	44-5/8"	52-5/8"
		Ieff(in4)	1920	2450	2800	3320	3830	4200	5150	5630	6640
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X
	52	Wt(plf)	10.2	11.6	14.0	16.8	18.2	19.2	21	23	27
		W360(plf)	211	270	323	389	435	462	566	627	733
		N-ds	38-3/8"	38-3/8"	38-1/2"	38-1/2"	38-1/2"	42-1/2"	38-5/8"	40-5/8"	48-5/8"
		Ieff(in4)	2070	2650	3170	3820	4270	4540	5550	6160	7190
		Bridging	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X
	56	Wt(plf)	12.2	13.5	14.8	17.0	19.0	21	23	24	29
		W360(plf)	248	306	360	424	479	524	616	682	811
		N-ds	38-3/8"	38-3/8"	38-1/2"	38-1/2"	38-1/2"	38-1/2"	34-5/8"	38-5/8"	34-3/4"
		Ieff(in4)	2440	3010	3530	4160	4710	5140	6050	6690	7960
		Bridging	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X
	60	Wt(plf)	12.4	13.3	14.6	16.0	17.2	18.8	21	23	26
		W360(plf)	280	326	387	445	496	558	667	746	836
		N-ds	38-3/8"	38-3/8"	40-3/8"	38-1/2"	38-1/2"	38-1/2"	34-5/8"	36-5/8"	40-5/8"
		Ieff(in4)	2750	3200	3800	4370	4870	5480	6550	7320	8210
		Bridging	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength												
BEARING HEIGHT	2 1/2"	5"	7 1/2"									
Concrete Slab Parameters												
Light Weight Concrete (110 pcf) f'c = 4.0 ksi												
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot												
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**
40	45	50	59	61	67	75	88	92				
520	570	635	750	775	852	949	1101	1194				
66-3/4"	74-3/4"	84-3/4"	96-3/4"	96-3/4"	112-3/4"	126-3/4"	156-3/4"	138-3/4"				
5110	5600	6230	7370	7610	8360	9320	10810	11720				
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X				
38	42	47	52	57	63	71	80	92	93			
595	668	728	838	888	988	1108	1234	1475	1500			
58-3/4"	66-3/4"	74-3/4"	74-3/4"	82-3/4"	96-3/4"	112-3/4"	126-3/4"	138-3/4"	138-3/4"			
5850	6550	7150	8220	8720	9700	10880	12120	14480	14730			
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X			
38	43	48	54	57	66	75	81	85	97	102		
656	736	815	938	964	1115	1253	1361	1463	1680	1774		
58-3/4"	66-3/4"	74-3/4"	74-3/4"	74-3/4"	96-3/4"	112-3/4"	126-3/4"	110-3/4"	138-3/4"	138-3/4"		
6440	7230	8000	9210	9460	10950	12310	13370	14360	16490	17420		
(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X		
36	42	44	49	54	59	67	75	84	93	97		
705	807	830	933	1041	1101	1250	1402	1602	1809	1900		
60-3/4"	66-3/4"	66-3/4"	66-3/4"	74-3/4"	82-3/4"	96-3/4"	112-3/4"	110-3/4"	138-3/4"	138-3/4"		
6920	7920	8150	9160	10230	10810	12270	13760	15730	17760	18660		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X		
35	40	44	48	54	56	66	75	76	84	94	97	
714	811	905	1017	1135	1164	1363	1529	1601	1772	2034	2096	
50-3/4"	58-3/4"	66-3/4"	66-3/4"	74-3/4"	74-3/4"	96-3/4"	112-3/4"	98-3/4"	110-3/4"	138-3/4"	138-3/4"	
7010	7970	8890	9990	11150	11430	13380	15010	15720	17400	19970	20580	
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
35	40	42	47	52	57	63	72	80	86	89	102	104
837	951	977	1119	1224	1364	1470	1668	1913	2073	2167	2508	2536
50-3/4"	58-3/4"	58-3/4"	60-3/4"	66-3/4"	74-3/4"	82-3/4"	96-3/4"	98-3/4"	110-3/4"	110-3/4"	138-3/4"	138-3/4"
8220	9340	9590	10980	12020	13400	14430	16380	18790	20360	21280	24620	24900
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
32	36	40	46	48	53	60	71	72	81	88	89	103
865	979	1112	1288	1322	1445	1639	1925	2003	2234	2493	2521	2917
46-3/4"	50-3/4"	58-3/4"	60-3/4"	60-3/4"	66-3/4"	74-3/4"	96-3/4"	84-3/4"	98-3/4"	110-3/4"	110-3/4"	138-3/4"
8490	9610	10920	12650	12980	14190	16100	18900	19670	21930	24480	24750	28650
(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
33	38	40	46	52	53	63	64	75	78	83	89	94
960	1145	1174	1379	1552	1566	1907	1936	2320	2385	2641	2857	2948
40-3/4"	50-3/4"	50-3/4"	52-3/4"	60-3/4"	60-3/4"	74-3/4"	74-3/4"	84-3/4"	84-3/4"	98-3/4"	110-3/4"	110-3/4"
9420	11250	11530	13540	15240	15380	18720	19010	22780	23420	25930	28050	28950
(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
30	34	38	44	46	52	57	66	69	78	79	86	95
977	1137	1284	1504	1542	1720	1914	2172	2330	2631	2693	2985	3300
38-3/4"	44-3/4"	50-3/4"	52-3/4"	52-3/4"	60-3/4"	66-3/4"	74-3/4"	72-3/4"	84-3/4"	84-3/4"	98-3/4"	110-3/4"
9590	11160	12610	14770	15140	16890	18790	21330	22870	25840	26450	29320	32410
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1.5	1.5	1.5	1.5
		tc (in.)	2	2	2	2	2	3.25	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
80	38	Wt(plf)	12.6	14.6	17.4	20	22	24	28	31	36
		W360(plf)	141	172	207	236	249	308	351	398	462
		N-ds	42-3/8"	40-1/2"	42-1/2"	52-1/2"	40-5/8"	48-5/8"	56-5/8"	52-3/4"	60-3/4"
		Ieff(in4)	1680	2050	2470	2810	2970	3670	4190	4750	5500
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X
	40	Wt(plf)	12.4	14.2	16.3	19.6	23	24	26	29	36
		W360(plf)	149	180	213	251	286	338	364	405	510
		N-ds	40-3/8"	40-1/2"	40-1/2"	40-5/8"	42-5/8"	44-5/8"	54-5/8"	46-3/4"	60-3/4"
		Ieff(in4)	1770	2140	2530	2990	3400	4030	4330	4830	6070
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X
	42	Wt(plf)	12.3	14.3	16.4	18.7	21	23	27	29	34
		W360(plf)	162	197	234	266	290	353	404	444	512
		N-ds	40-3/8"	40-1/2"	40-1/2"	46-1/2"	40-5/8"	44-5/8"	52-5/8"	46-3/4"	52-3/4"
		Ieff(in4)	1930	2350	2780	3170	3460	4210	4820	5300	6100
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(3)X
	44	Wt(plf)	11.6	13.3	16.0	19.0	21	22	25	27	32
		W360(plf)	166	203	244	284	321	382	411	454	549
		N-ds	40-3/8"	40-1/2"	40-1/2"	42-1/2"	52-1/2"	62-1/2"	50-5/8"	52-5/8"	66-5/8"
		Ieff(in4)	1980	2420	2900	3380	3830	4560	4900	5410	6550
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(3)X
	46	Wt(plf)	11.4	13.4	15.4	17.3	19.5	22	25	28	34
		W360(plf)	173	221	259	292	321	399	447	500	607
		N-ds	40-3/8"	40-1/2"	40-1/2"	44-1/2"	46-1/2"	40-5/8"	50-5/8"	42-3/4"	52-3/4"
		Ieff(in4)	2060	2640	3090	3480	3830	4750	5320	5960	7240
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(3)X
	48	Wt(plf)	11.4	14.1	16.3	17.9	20.0	22	25	29	33
		W360(plf)	187	234	277	312	356	436	471	550	657
		N-ds	40-3/8"	40-1/2"	40-1/2"	40-1/2"	46-1/2"	42-5/8"	36-3/4"	38-3/4"	52-3/4"
		Ieff(in4)	2230	2780	3300	3720	4250	5200	5610	6560	7830
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	52	Wt(plf)	12.7	14.3	15.8	18.6	22	23	25	27	32
		W360(plf)	210	262	304	349	407	488	524	574	709
		N-ds	40-3/8"	42-3/8"	40-1/2"	40-1/2"	42-1/2"	38-5/8"	40-5/8"	36-3/4"	44-3/4"
		Ieff(in4)	2500	3130	3620	4160	4850	5820	6240	6840	8450
		Bridging	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X
	56	Wt(plf)	12.6	14.2	15.6	17.6	18.4	20	23	25	30
		W360(plf)	222	286	330	389	414	498	575	637	753
		N-ds	40-3/8"	40-3/8"	40-1/2"	40-1/2"	40-1/2"	34-5/8"	42-5/8"	36-3/4"	42-3/4"
		Ieff(in4)	2650	3410	3930	4640	4940	5930	6850	7590	8970
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	60	Wt(plf)	12.5	13.9	16.0	18.4	21	22	24	27	32
		W360(plf)	234	303	359	428	495	581	629	699	822
		N-ds	40-3/8"	40-3/8"	40-1/2"	40-1/2"	40-1/2"	34-5/8"	38-5/8"	34-3/4"	38-3/4"
		Ieff(in4)	2790	3610	4280	5090	5900	6920	7500	8330	9800
		Bridging	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 4.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	3.5	3.5	3.5	4	4
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
41	50	52	61	63	71	80	92	94				
532	639	661	783	806	912	1019	1179	1243				
66-3/4"	84-3/4"	84-3/4"	94-3/4"	94-3/4"	110-3/4"	124-3/4"	154-3/4"	136-3/4"				
6340	7620	7870	9330	9610	10870	12140	14050	14810				
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X				
41	46	52	56	63	70	79	89	93				
587	645	729	799	890	1007	1124	1271	1370				
66-3/4"	74-3/4"	84-3/4"	80-3/4"	94-3/4"	110-3/4"	124-3/4"	154-3/4"	136-3/4"				
7000	7680	8690	9530	10600	12000	13400	15140	16320				
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X				
41	47	52	55	64	67	75	84	94	98			
644	718	801	852	977	1031	1159	1287	1501	1552			
66-3/4"	74-3/4"	84-3/4"	74-3/4"	94-3/4"	94-3/4"	110-3/4"	124-3/4"	136-3/4"	136-3/4"			
7680	8550	9550	10150	11640	12290	13810	15330	17890	18500			
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X			
38	43	49	54	58	66	75	80	93	97			
650	729	809	930	985	1126	1266	1375	1637	1693			
58-3/4"	66-3/4"	74-3/4"	74-3/4"	80-3/4"	94-3/4"	110-3/4"	124-3/4"	136-3/4"	136-3/4"			
7750	8690	9640	11080	11740	13420	15090	16380	19510	20180			
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X			
38	43	49	55	57	67	75	81	86	97	103		
707	793	879	1011	1038	1224	1376	1494	1598	1838	1906		
58-3/4"	66-3/4"	74-3/4"	74-3/4"	74-3/4"	94-3/4"	110-3/4"	124-3/4"	110-3/4"	136-3/4"	136-3/4"		
8420	9450	10480	12040	12370	14590	16400	17810	19050	21910	22710		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X		
38	43	45	51	56	61	67	76	84	94	97		
765	858	883	1007	1123	1218	1352	1517	1727	1953	2016		
58-3/4"	66-3/4"	66-3/4"	66-3/4"	74-3/4"	80-3/4"	94-3/4"	110-3/4"	110-3/4"	136-3/4"	136-3/4"		
9120	10220	10520	12000	13380	14520	16110	18080	20590	23270	24020		
(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X		
38	42	47	52	58	59	69	78	82	87	97	102	103
828	939	1051	1181	1328	1363	1604	1793	1895	2056	2327	2478	2503
50-3/4"	58-3/4"	66-3/4"	66-3/4"	74-3/4"	74-3/4"	94-3/4"	110-3/4"	96-3/4"	110-3/4"	136-3/4"	136-3/4"	136-3/4"
9860	11190	12530	14070	15830	16250	19110	21370	22590	24500	27730	29530	29830
(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
36	40	42	48	54	60	63	72	81	85	90	103	105
918	1044	1072	1244	1361	1554	1638	1860	2125	2188	2370	2818	2846
50-3/4"	58-3/4"	58-3/4"	60-3/4"	66-3/4"	74-3/4"	80-3/4"	94-3/4"	96-3/4"	96-3/4"	110-3/4"	136-3/4"	136-3/4"
10940	12440	12780	14830	16220	18520	19520	22170	25330	26070	28240	33580	33920
(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X
36	40	45	52	53	56	64	70	78	83	85	93	103
969	1094	1243	1449	1463	1604	1823	1957	2250	2460	2488	2818	3195
44-3/4"	50-3/4"	58-3/4"	60-3/4"	60-3/4"	66-3/4"	74-3/4"	80-3/4"	82-3/4"	96-3/4"	96-3/4"	110-3/4"	136-3/4"
11550	13040	14810	17270	17440	19110	21730	23320	26810	29320	29650	33580	38070
(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 4.0 ksi								
		hr (in.)	1	1	1	1	1	1.5	1.5	1.5	1.5
		tc (in.)	2	2	2	2	2	3.25	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
90	44	Wt(plf)	13.9	16.4	20	21	24	27	32	36	41
		W360(plf)	140	174	213	226	251	312	361	420	476
		N-ds	46-3/8"	46-1/2"	46-1/2"	46-5/8"	46-5/8"	52-5/8"	52-3/4"	60-3/4"	66-3/4"
		Ieff(in4)	2370	2950	3610	3840	4270	5300	6120	7130	8070
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X
	46	Wt(plf)	13.9	16.3	18.3	21	24	26	29	33	41
		W360(plf)	152	189	214	248	272	335	363	419	518
		N-ds	46-3/8"	46-1/2"	46-1/2"	52-1/2"	60-1/2"	54-5/8"	46-3/4"	52-3/4"	66-3/4"
		Ieff(in4)	2590	3210	3640	4200	4610	5690	6150	7120	8790
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	48	Wt(plf)	13.4	16.0	18.5	21	23	27	29	34	39
		W360(plf)	158	194	233	265	284	369	393	455	521
		N-ds	46-3/8"	46-1/2"	46-1/2"	46-5/8"	46-5/8"	52-5/8"	46-3/4"	52-3/4"	58-3/4"
		Ieff(in4)	2680	3300	3950	4500	4820	6260	6670	7720	8840
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	50	Wt(plf)	13.0	15.4	18.0	20.0	23	25	28	33	38
		W360(plf)	163	209	239	274	311	376	404	492	563
		N-ds	46-3/8"	46-1/2"	46-1/2"	46-1/2"	46-5/8"	48-5/8"	42-3/4"	52-3/4"	58-3/4"
		Ieff(in4)	2760	3540	4060	4640	5280	6380	6850	8340	9550
		Bridging	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	52	Wt(plf)	13.2	15.0	17.2	19.9	22	25	28	31	38
		W360(plf)	175	213	253	291	313	399	435	486	606
		N-ds	46-3/8"	46-1/2"	46-1/2"	46-1/2"	52-1/2"	50-5/8"	42-3/4"	46-3/4"	58-3/4"
		Ieff(in4)	2980	3610	4280	4940	5320	6770	7370	8240	10280
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X
	56	Wt(plf)	13.6	15.4	17.6	19.3	23	25	27	30	36
		W360(plf)	191	236	278	316	368	440	470	528	635
		N-ds	46-3/8"	48-3/8"	46-1/2"	46-1/2"	46-5/8"	44-5/8"	38-3/4"	42-3/4"	50-3/4"
		Ieff(in4)	3240	4000	4720	5350	6250	7460	7980	8960	10770
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	60	Wt(plf)	13.5	15.1	17.7	21	24	25	28	31	38
		W360(plf)	207	254	304	355	409	486	519	609	740
		N-ds	46-3/8"	46-3/8"	46-1/2"	46-1/2"	46-1/2"	40-5/8"	36-3/4"	40-3/4"	50-3/4"
		Ieff(in4)	3520	4310	5150	6020	6940	8240	8810	10330	12560
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X
	66	Wt(plf)	13.4	16.9	19.3	21	25	28	30	34	37
		W360(plf)	232	298	351	395	464	557	605	701	809
		N-ds	46-3/8"	46-3/8"	46-1/2"	46-1/2"	46-1/2"	30-3/4"	32-3/4"	38-3/4"	44-3/4"
		Ieff(in4)	3940	5060	5960	6700	7880	9460	10260	11900	13730
		Bridging	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X
	72	Wt(plf)	16.9	18.0	19.4	21	23	24	25	29	33
		W360(plf)	279	334	387	434	493	574	622	730	853
		N-ds	46-3/8"	46-3/8"	48-3/8"	46-1/2"	46-1/2"	34-5/8"	38-5/8"	36-3/4"	40-3/4"
		Ieff(in4)	4740	5670	6570	7370	8360	9740	10550	12390	14480
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength												
BEARING HEIGHT	2 1/2"	5"	7 1/2"									
Concrete Slab Parameters												
Light Weight Concrete (110 pcf) f'c = 4.0 ksi												
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	3.5	3.5	3.5	4	4
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot												
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**
47	53	63	71	72	80	94						
544	609	710	815	827	932	1082						
74-3/4"	84-3/4"	102-3/4"	106-3/4"	106-3/4"	120-3/4"	150-3/4"						
9240	10330	12050	13830	14040	15810	18350						
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X						
46	52	57	63	71	80	92	94					
585	663	707	811	901	1015	1178	1204					
74-3/4"	84-3/4"	88-3/4"	90-3/4"	106-3/4"	120-3/4"	150-3/4"	150-3/4"					
9930	11250	11990	13760	15290	17230	20000	20430					
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X					
45	53	59	66	72	76	93	97					
607	719	778	901	978	1035	1279	1329					
66-3/4"	84-3/4"	88-3/4"	90-3/4"	106-3/4"	106-3/4"	150-3/4"	150-3/4"					
10290	12210	13200	15290	16590	17560	21700	22540					
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X					
43	49	55	63	67	75	81	94	98				
647	719	805	951	988	1119	1218	1412	1501				
66-3/4"	74-3/4"	84-3/4"	90-3/4"	90-3/4"	106-3/4"	120-3/4"	150-3/4"	132-3/4"				
10980	12200	13650	16130	16760	18980	20670	23960	25470				
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X				
43	49	55	62	67	76	85	95	98				
696	774	867	967	1063	1204	1341	1520	1614				
66-3/4"	74-3/4"	84-3/4"	80-3/4"	90-3/4"	106-3/4"	120-3/4"	150-3/4"	132-3/4"				
11820	13140	14710	16410	18040	20440	22750	25790	27390				
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X				
41	46	51	58	63	72	77	86	97	103			
737	835	918	1051	1124	1287	1412	1568	1849	1921			
58-3/4"	66-3/4"	74-3/4"	74-3/4"	80-3/4"	90-3/4"	106-3/4"	120-3/4"	132-3/4"	132-3/4"			
12510	14180	15570	17830	19070	21840	23960	26610	31380	32590			
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X			
43	48	52	59	60	71	75	81	89	98	103		
858	962	1055	1218	1232	1459	1519	1665	1876	2125	2204		
58-3/4"	66-3/4"	74-3/4"	74-3/4"	74-3/4"	90-3/4"	90-3/4"	106-3/4"	104-3/4"	132-3/4"	132-3/4"		
14550	16320	17910	20660	20910	24760	25770	28250	31830	36060	37400		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X		
43	49	53	59	66	67	77	83	89	95	104	110	
943	1080	1195	1352	1521	1558	1825	2001	2112	2310	2624	2781	
50-3/4"	58-3/4"	66-3/4"	66-3/4"	74-3/4"	74-3/4"	90-3/4"	106-3/4"	92-3/4"	104-3/4"	132-3/4"	132-3/4"	
16010	18320	20280	22940	25810	26430	30960	33950	35830	39200	44520	47190	
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X	(2)X	
40	45	47	52	58	62	69	78	86	91	97	107	114
1053	1194	1229	1400	1549	1727	1868	2116	2393	2475	2683	3141	3245
50-3/4"	58-3/4"	58-3/4"	60-3/4"	66-3/4"	74-3/4"	80-3/4"	90-3/4"	92-3/4"	92-3/4"	104-3/4"	132-3/4"	132-3/4"
17870	20270	20850	23760	26290	29300	31700	35900	40610	42000	45520	53300	55060
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT		2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 5.0 ksi								
		hr (in.)	1	1	1	1	1	1.5	1.5	1.5	1.5
		tc (in.)	2	2	2	2	2.5	3.25	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3	3.5	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
100	50	Wt(plf)	15.6	18.7	22	25	27	33	34	37	46
		W360(plf)	148	178	218	240	275	358	358	403	480
		N-ds	52-3/8"	50-1/2"	52-1/2"	50-5/8"	44-3/4"	52-3/4"	52-3/4"	60-3/4"	74-3/4"
		Ieff(in4)	3420	4150	5070	5580	6400	8330	8330	9380	11180
		Bridging	(6)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	52	Wt(plf)	15.4	18.1	21	24	26	29	34	37	43
		W360(plf)	151	191	218	246	288	336	386	425	490
		N-ds	50-3/8"	50-1/2"	50-1/2"	56-1/2"	48-5/8"	46-3/4"	52-3/4"	60-3/4"	66-3/4"
		Ieff(in4)	3520	4440	5080	5740	6710	7820	8980	9880	11400
		Bridging	(6)X	(6)X	(6)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X
	54	Wt(plf)	15.2	17.2	21	25	27	30	34	38	44
		W360(plf)	162	191	238	277	306	367	405	466	533
		N-ds	50-3/8"	50-1/2"	50-1/2"	56-1/2"	44-5/8"	56-5/8"	52-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	3760	4450	5530	6440	7120	8540	9430	10840	12420
		Bridging	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	56	Wt(plf)	14.8	17.3	19.2	23	26	29	33	34	43
		W360(plf)	164	205	232	271	319	373	427	448	564
		N-ds	50-3/8"	50-1/2"	50-1/2"	52-1/2"	44-5/8"	52-5/8"	66-5/8"	52-3/4"	66-3/4"
		Ieff(in4)	3830	4770	5410	6320	7420	8690	9930	10420	13130
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	58	Wt(plf)	14.5	17.3	19.4	22	25	28	32	35	41
		W360(plf)	169	219	249	284	336	393	436	478	558
		N-ds	50-3/8"	50-1/2"	50-1/2"	52-1/2"	44-5/8"	42-3/4"	46-3/4"	52-3/4"	58-3/4"
		Ieff(in4)	3930	5100	5790	6610	7830	9140	10140	11140	12980
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X
	60	Wt(plf)	14.7	16.7	21	25	26	30	33	37	43
		W360(plf)	180	221	276	322	355	431	463	528	610
		N-ds	50-3/8"	50-1/2"	50-1/2"	52-1/2"	44-5/8"	42-3/4"	44-3/4"	50-3/4"	58-3/4"
		Ieff(in4)	4190	5140	6430	7510	8270	10040	10770	12290	14190
		Bridging	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	66	Wt(plf)	14.4	18.2	21	24	28	30	34	37	42
		W360(plf)	205	258	313	361	415	471	537	589	727
		N-ds	50-3/8"	52-3/8"	50-1/2"	50-1/2"	44-3/4"	34-3/4"	40-3/4"	44-3/4"	58-3/4"
		Ieff(in4)	4770	6000	7300	8410	9670	10960	12490	13710	16930
		Bridging	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X
	72	Wt(plf)	17.2	19.2	21	24	25	27	29	32	39
		W360(plf)	221	288	344	393	441	500	556	616	753
		N-ds	50-3/8"	50-3/8"	50-1/2"	50-1/2"	46-1/2"	40-5/8"	48-5/8"	42-3/4"	50-3/4"
		Ieff(in4)	5140	6710	8000	9140	10270	11630	12950	14340	17540
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	80	Wt(plf)	19.1	19.6	21	23	24	27	31	34	39
		W360(plf)	336	336	369	443	491	566	652	717	845
		N-ds	50-3/8"	50-3/8"	52-3/8"	50-1/2"	44-1/2"	34-3/4"	34-3/4"	38-3/4"	44-3/4"
		Ieff(in4)	7820	7820	8580	10320	11420	13170	15190	16690	19660
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"	5"	7 1/2"								
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 5.0 ksi													
1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3	
3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	3.5	3.5	3.5	4	4	
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15	
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot													
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**	
51	61	64	71	80	89								
551	644	667	765	846	966								
84-3/4"	102-3/4"	102-3/4"	102-3/4"	116-3/4"	146-3/4"								
12830	15000	15540	17800	19690	22480								
(4)X	(4)X	(4)X	(3)X	(3)X	(3)X								
53	57	66	71	80	93	95							
604	645	738	825	913	1093	1095							
84-3/4"	88-3/4"	102-3/4"	102-3/4"	116-3/4"	146-3/4"	146-3/4"							
14050	15020	17180	19200	21240	25440	25480							
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X							
49	55	63	71	80	81	94							
601	673	775	887	981	1013	1177							
74-3/4"	84-3/4"	102-3/4"	102-3/4"	116-3/4"	116-3/4"	146-3/4"							
13980	15670	18030	20640	22840	23580	27390							
(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X							
48	55	64	67	76	81	94							
635	722	830	889	990	1085	1261							
74-3/4"	84-3/4"	102-3/4"	90-3/4"	102-3/4"	116-3/4"	146-3/4"							
14770	16800	19330	20680	23040	25270	29350							
(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X							
49	56	62	68	76	85	95	102						
688	771	841	950	1058	1186	1347	1431						
74-3/4"	84-3/4"	88-3/4"	90-3/4"	102-3/4"	116-3/4"	146-3/4"	146-3/4"						
16020	17950	19570	22100	24620	27610	31360	33310						
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X						
46	55	62	67	75	77	94	97						
690	822	896	1012	1127	1161	1435	1492						
66-3/4"	84-3/4"	88-3/4"	90-3/4"	102-3/4"	102-3/4"	146-3/4"	146-3/4"						
16050	19130	20860	23550	26240	27030	33410	34730						
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X						
49	55	60	66	74	79	87	97	102					
845	937	1035	1138	1279	1414	1566	1778	1887					
66-3/4"	74-3/4"	84-3/4"	80-3/4"	90-3/4"	102-3/4"	116-3/4"	146-3/4"	126-3/4"					
19680	21820	24090	26490	29780	32900	36440	41380	43920					
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X					
44	50	56	62	69	74	83	91	106	107				
871	991	1088	1254	1346	1503	1685	1862	2199	2252				
58-3/4"	66-3/4"	74-3/4"	74-3/4"	80-3/4"	90-3/4"	102-3/4"	116-3/4"	126-3/4"	126-3/4"				
20280	23060	25330	29180	31330	34980	39220	43340	51190	52420				
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X				
42	47	55	59	64	70	79	87	96	99	114	116		
959	1091	1247	1378	1516	1651	1873	2085	2350	2381	2834	2885		
50-3/4"	58-3/4"	66-3/4"	66-3/4"	74-3/4"	80-3/4"	90-3/4"	102-3/4"	100-3/4"	100-3/4"	126-3/4"	126-3/4"		
22330	25380	29040	32080	35300	38430	43590	48540	54690	55410	65970	67150		
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X	(2)X	(2)X	(2)X		

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 5.0 ksi								
		hr (in.)	1	1	1	1	1	1.5	1.5	1.5	1.5
		tc (in.)	2	2	2	2	2.5	3.25	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3.5	4	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
110	56	Wt(plf)	17.2	20	22	27	30	33	37	42	48
		W360(plf)	151	182	210	247	283	330	379	429	469
		N-ds	56-3/8"	56-1/2"	56-1/2"	56-5/8"	52-5/8"	66-5/8"	60-3/4"	66-3/4"	74-3/4"
		Ieff(in4)	4680	5650	6490	7670	8750	10230	11730	13280	14530
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X
	58	Wt(plf)	16.7	19.9	23	25	29	33	37	39	48
		W360(plf)	152	195	224	247	293	353	405	424	502
		N-ds	56-3/8"	56-1/2"	56-1/2"	60-1/2"	50-5/8"	66-5/8"	60-3/4"	58-3/4"	74-3/4"
		Ieff(in4)	4720	6050	6950	7660	9080	10950	12540	13140	15550
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X
	60	Wt(plf)	16.7	19.1	25	27	29	35	40	41	49
		W360(plf)	163	195	249	276	307	391	448	466	544
		N-ds	56-3/8"	56-1/2"	56-1/2"	60-1/2"	48-5/8"	50-3/4"	58-3/4"	58-3/4"	74-3/4"
		Ieff(in4)	5040	6050	7720	8550	9510	12100	13890	14430	16840
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	62	Wt(plf)	16.8	19.1	21	24	29	31	35	39	45
		W360(plf)	173	208	239	271	327	369	420	481	537
		N-ds	56-3/8"	56-1/2"	56-1/2"	56-1/2"	48-5/8"	56-5/8"	52-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	5370	6450	7410	8410	10130	11420	13010	14910	16640
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X
	64	Wt(plf)	16.5	19.4	22	24	28	31	35	39	46
		W360(plf)	174	221	254	284	337	391	446	511	570
		N-ds	56-3/8"	56-1/2"	56-1/2"	56-1/2"	48-5/8"	56-5/8"	52-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	5390	6850	7870	8810	10440	12120	13820	15830	17670
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X
	66	Wt(plf)	16.4	19.6	24	26	30	34	38	42	46
		W360(plf)	184	224	280	315	358	435	495	565	613
		N-ds	56-3/8"	56-1/2"	56-1/2"	56-1/2"	48-3/4"	44-3/4"	50-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	5710	6930	8660	9750	11100	13470	15330	17500	18980
		Bridging	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	72	Wt(plf)	18.1	20.0	25	29	32	35	37	41	49
		W360(plf)	202	251	313	369	413	494	536	610	695
		N-ds	56-3/8"	56-3/8"	56-1/2"	56-1/2"	48-3/4"	40-3/4"	44-3/4"	50-3/4"	58-3/4"
		Ieff(in4)	6240	7760	9700	11420	12810	15300	16600	18890	21520
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(3)X
	80	Wt(plf)	19.3	21	23	25	27	30	33	36	44
		W360(plf)	261	287	346	399	445	523	579	636	790
		N-ds	56-3/8"	56-3/8"	56-1/2"	56-1/2"	52-1/2"	48-5/8"	42-3/4"	44-3/4"	58-3/4"
		Ieff(in4)	8080	8880	10720	12370	13770	16210	17940	19700	24480
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	88	Wt(plf)	25	25	27	29	31	33	35	38	42
		W360(plf)	320	320	400	461	517	582	668	735	857
		N-ds	56-3/8"	56-3/8"	56-1/2"	56-1/2"	48-1/2"	38-3/4"	38-3/4"	40-3/4"	50-3/4"
		Ieff(in4)	9920	9920	12390	14290	16010	18040	20700	22770	26550
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength

BEARING HEIGHT	2 1/2"	5"	7 1/2"

Concrete Slab Parameters

Light Weight Concrete (110 pcf) f'c = 5.0 ksi

1.5	1.5	1.5	2	2	2	2	2	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	3.5	3.5	3.5	4	4
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15

Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot

1400	1600	1800	2000	2200	2400	2700	3000	3300	3600	3900	4200	4500
57	64	72	81	90	94							
565	631	705	803	900	953							
88-3/4"	102-3/4"	112-3/4"	112-3/4"	142-3/4"	142-3/4"							
17490	19560	21830	24870	27880	29520							
(4)X	(4)X	(4)X	(4)X	(4)X	(4)X							
55	65	72	81	94	95							
586	676	754	859	987	1019							
84-3/4"	102-3/4"	112-3/4"	112-3/4"	142-3/4"	142-3/4"							
18150	20940	23360	26610	30570	31580							
(4)X	(4)X	(4)X	(3)X	(3)X	(3)X							
55	64	71	76	81	94							
625	721	805	862	930	1088							
84-3/4"	102-3/4"	112-3/4"	100-3/4"	112-3/4"	142-3/4"							
19370	22350	24940	26710	28800	33700							
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X							
55	60	68	76	82	94	98						
666	710	802	918	990	1158	1206						
84-3/4"	88-3/4"	102-3/4"	100-3/4"	112-3/4"	142-3/4"	142-3/4"						
20620	22010	24830	28430	30660	35870	37370						
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X						
56	61	68	77	86	96	99						
707	755	852	974	1075	1229	1281						
84-3/4"	88-3/4"	102-3/4"	100-3/4"	112-3/4"	142-3/4"	142-3/4"						
21900	23380	26380	30190	33290	38080	39680						
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X						
53	60	67	75	80	85	98						
700	791	902	1032	1069	1172	1357						
74-3/4"	84-3/4"	102-3/4"	100-3/4"	100-3/4"	112-3/4"	142-3/4"						
21700	24520	27960	31980	33110	36320	42040						
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X						
55	63	69	74	83	84	102	105					
841	952	1021	1153	1275	1310	1630	1675					
74-3/4"	84-3/4"	88-3/4"	90-3/4"	100-3/4"	100-3/4"	142-3/4"	142-3/4"					
26060	29500	31630	35730	39510	40570	50490	51890					
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X					
50	56	63	70	75	84	92	107	108				
918	1010	1141	1253	1380	1556	1723	2004	2088				
66-3/4"	74-3/4"	84-3/4"	80-3/4"	90-3/4"	100-3/4"	112-3/4"	142-3/4"	122-3/4"				
28440	31300	35360	38820	42750	48200	53390	62100	64680				
(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X				
49	56	59	68	70	79	88	97	107	115			
1006	1137	1235	1422	1491	1700	1897	2108	2427	2542			
58-3/4"	66-3/4"	74-3/4"	74-3/4"	80-3/4"	90-3/4"	100-3/4"	112-3/4"	122-3/4"	122-3/4"			
31170	35230	38250	44050	46190	52660	58760	65290	75190	78750			
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X			

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

	Based on a 50 ksi Maximum Yield Strength									
	BEARING HEIGHT	2 1/2"	5"	7 1/2"						
		Concrete Slab Parameters								
		Light Weight Concrete (110 pcf) f'c = 5.0 ksi								
		hr (in.)	1	1	1	1	1.5	1.5	1.5	1.5	1.5
		tc (in.)	2	2	2	2	3.25	3.25	3.25	3.25	3.25
		Js (ft.)	3	3	3	3	3	3	3.5	4	4
Joist Span	Joist Depth	Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot									
(ft.)	(in.)	TL	300	400	500	600	700	800	900	1000	1200
120	72	Wt(plf)	19.5	22	27	31	34	39	43	44	56
		W360(plf)	183	222	278	319	380	446	505	517	629
		N-ds	60-3/8"	60-1/2"	60-1/2"	60-1/2"	40-3/4"	50-3/4"	58-3/4"	58-3/4"	74-3/4"
		Ieff(in4)	7380	8920	11180	12850	15290	17940	20300	20800	25290
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X
	74	Wt(plf)	19.6	22	25	27	32	35	39	44	49
		W360(plf)	193	234	270	304	390	419	477	544	600
		N-ds	60-3/8"	60-1/2"	60-1/2"	60-1/2"	40-3/4"	44-3/4"	50-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	7780	9390	10860	12220	15710	16840	19180	21890	24120
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X
	76	Wt(plf)	20.0	22	25	27	30	33	37	43	48
		W360(plf)	203	246	284	320	397	426	487	564	620
		N-ds	60-3/8"	60-1/2"	60-1/2"	60-1/2"	52-5/8"	46-3/4"	50-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	8180	9880	11420	12850	15980	17120	19590	22700	24950
		Bridging	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X
	78	Wt(plf)	19.2	24	29	33	34	40	46	49	53
		W360(plf)	194	264	314	360	418	483	555	628	684
		N-ds	60-3/8"	60-1/2"	60-1/2"	60-1/2"	40-3/4"	44-3/4"	50-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	7810	10630	12630	14500	16810	19450	22330	25260	27520
		Bridging	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	80	Wt(plf)	19.2	23	28	32	34	38	42	49	53
		W360(plf)	204	255	326	358	438	495	565	658	717
		N-ds	60-3/8"	62-3/8"	60-1/2"	60-1/2"	40-3/4"	44-3/4"	50-3/4"	58-3/4"	66-3/4"
		Ieff(in4)	8190	10260	13120	14390	17610	19900	22730	26470	28840
		Bridging	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	82	Wt(plf)	19.3	22	25	30	33	37	41	43	53
		W360(plf)	213	264	306	366	453	489	583	604	750
		N-ds	60-3/8"	62-3/8"	60-1/2"	60-1/2"	40-3/4"	40-3/4"	50-3/4"	50-3/4"	66-3/4"
		Ieff(in4)	8580	10620	12330	14730	18240	19670	23450	24280	30170
		Bridging	(5)X	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X
	84	Wt(plf)	20.0	22	24	31	33	36	39	42	47
		W360(plf)	223	276	316	387	447	505	554	622	696
		N-ds	60-3/8"	62-3/8"	60-1/2"	60-1/2"	40-3/4"	40-3/4"	44-3/4"	50-3/4"	58-3/4"
		Ieff(in4)	8960	11100	12720	15570	17960	20320	22280	25030	28000
		Bridging	(5)X	(5)X	(5)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	88	Wt(plf)	25	26	30	33	40	42	44	47	57
		W360(plf)	251	295	366	402	508	578	627	706	812
		N-ds	60-3/8"	60-3/8"	60-1/2"	60-1/2"	40-3/4"	40-3/4"	44-3/4"	50-3/4"	58-3/4"
		Ieff(in4)	10090	11850	14700	16160	20420	23260	25220	28400	32660
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X
	96	Wt(plf)	30	30	31	33	34	36	38	41	52
		W360(plf)	398	398	398	464	539	571	661	713	911
		N-ds	60-1/2"	60-1/2"	60-1/2"	60-1/2"	40-3/4"	40-3/4"	40-3/4"	44-3/4"	58-3/4"
		Ieff(in4)	16020	16020	16020	18670	21660	22970	26580	28690	36620
		Bridging	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X	(4)X

DESIGN GUIDE LRFD LIGHT WEIGHT TABLE FOR COMPOSITE STEEL JOISTS, CJ-SERIES

Based on a 50 ksi Maximum Yield Strength													
BEARING HEIGHT			2 1/2"	5"	7 1/2"								
Concrete Slab Parameters													
Light Weight Concrete (110 pcf) f'c = 5.0 ksi													
1.5	1.5	1.5	2	2	2	2	3	3	3	3	3	3
3.25	3.25	3.25	3.25	3.25	3.5	3.5	3.5	4	4	4	4	4
5	5.5	6	7	7.5	8	9	10	11	12	13	14	15
Total Safe Factored Uniformly Distributed Joist Load in Pounds Per Linear Foot												
1400	**1600**	**1800**	**2000**	**2200**	**2400**	**2700**	**3000**	**3300**	**3600**	**3900**	**4200**	**4500**
60	67	76	81	88	98							
712	813	909	966	1060	1215							
84-3/4"	102-3/4"	112-3/4"	100-3/4"	112-3/4"	136-3/4"							
28650	32700	36560	38860	42650	48860							
(4)X	(4)X	(4)X	(4)X	(3)X	(3)X							
58	63	72	78	87	98	104						
733	790	893	995	1098	1278	1338						
84-3/4"	88-3/4"	102-3/4"	100-3/4"	112-3/4"	136-3/4"	136-3/4"						
29470	31770	35930	40030	44160	51420	53800						
(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X						
57	64	73	79	88	99	105						
758	830	939	1046	1154	1343	1405						
84-3/4"	88-3/4"	102-3/4"	100-3/4"	112-3/4"	136-3/4"	136-3/4"						
30510	33390	37760	42050	46400	54020	56530						
(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X						
60	70	77	83	92	93	105						
777	890	1022	1139	1257	1292	1487						
74-3/4"	84-3/4"	102-3/4"	100-3/4"	112-3/4"	112-3/4"	136-3/4"						
31270	35790	41110	45830	50570	51960	59810						
(4)X	(3)X	(3)X	(3)X	(3)X	(3)X	(3)X						
57	65	76	83	84	90	104						
797	902	1055	1194	1209	1325	1544						
74-3/4"	84-3/4"	102-3/4"	100-3/4"	100-3/4"	112-3/4"	136-3/4"						
32060	36300	42420	48010	48610	53300	62100						
(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X						
57	62	72	77	84	90	104	107					
834	922	1080	1143	1264	1386	1614	1671					
74-3/4"	84-3/4"	102-3/4"	90-3/4"	100-3/4"	112-3/4"	136-3/4"	118-3/4"					
33530	37080	43420	45960	50840	55740	64930	67190					
(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X					
57	62	65	75	83	91	104	107					
871	963	1012	1168	1298	1447	1686	1743					
74-3/4"	84-3/4"	88-3/4"	90-3/4"	100-3/4"	112-3/4"	136-3/4"	118-3/4"					
35020	38720	40710	46980	52220	58190	67790	70110					
(4)X	(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X					
64	71	72	83	88	91	103	113					
930	1110	1125	1343	1464	1512	1683	1950					
66-3/4"	84-3/4"	84-3/4"	90-3/4"	100-3/4"	100-3/4"	112-3/4"	118-3/4"					
37400	44630	45250	54010	58900	60830	67690	78420					
(3)X	(3)X	(3)X	(3)X	(3)X	(3)X	(2)X	(2)X					
56	60	68	75	83	88	98	109	116				
1027	1116	1264	1381	1548	1707	1900	2187	2351				
66-3/4"	74-3/4"	84-3/4"	80-3/4"	90-3/4"	100-3/4"	112-3/4"	118-3/4"	118-3/4"				
41310	44900	50820	55530	62250	68640	76430	87980	94560				
(4)X	(4)X	(4)X	(4)X	(3)X	(3)X	(3)X	(3)X	(2)X				

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CODE OF STANDARD PRACTICE
FOR STEEL JOISTS AND JOIST GIRDERS

Adopted by the Steel Joist Institute April 7, 1931
Revised to Nov. 10, 2014 - Effective Jan.1, 2015

SECTION 1.
GENERAL

1.1 SCOPE

The practices and customs set forth herein are in accordance with good engineering practice, tend to ensure safety in steel joist and Joist Girder construction, and are standard within the industry. There shall be no conflict between this code and any legal building regulation. This code shall only supplement and amplify such laws. Unless specific provisions to the contrary are made in a contract for the purchase of steel joists or Joist Girders, this code is understood to govern the interpretation of such a contract.

1.2 APPLICATION

This Code of Standard Practice is to govern as a standard unless otherwise covered in the architects' and engineers' plans and specifications.

1.3 DEFINITIONS

Add-Load. A single vertical concentrated load that occurs at any one panel point along the joist chord. This load is in addition to any other gravity loads specified.

Bend-Check Load. A vertical concentrated load used to design the joist chord for the additional bending stresses resulting from this load being applied at any location between the joist panel points. This load shall already be accounted for in the specified joist designation load, uniform load, or Add-Load and is used only for the additional bending check in the chord and does not contribute to the overall axial forces within the joist. An ideal use of this is for incidental loads which have already been accounted for in the design loading but may induce additional bending stress due to this load occurring at any location along the chord.

Buyer. The entity that has agreed to purchase Material from the manufacturer and has also agreed to the terms of sale.

Erector. The entity that is responsible for the safe and proper erection of the materials in accordance with all applicable codes and regulations.

Material. Steel joists, Joist Girders and accessories as provided by the seller.

Owner. The entity that is identified as such in the contract documents.

Placement Plans. Drawings that are prepared depicting the interpretation of the contract document's requirements for the Material to be supplied by the Seller. These floor or roof plans are approved by the Specifying Professional, Buyer, or Owner for conformance with the design requirements. The Seller uses the information contained on these drawings for final material design. A unique piece mark number is typically shown for the individual placement of the steel joists, Joist Girders and accessories along with sections that describe the end bearing conditions and minimum attachment required so that material is placed in the proper location in the field.

Seller. A company certified by the Steel Joist Institute engaged in the manufacture and distribution of steel joists, Joist Girders and accessories.

Specifying Professional. The licensed professional who is responsible for sealing the building contract documents, that indicates that he or she has performed or supervised the analysis, design and document preparation for the structure and has knowledge of the load-carrying structural system.

Structural Drawings. The graphic or pictorial portions of the contract documents showing the design, location and dimensions of the work. These documents generally include plans, elevations, sections, details, connections, all loads, schedules, diagrams and notes.

1.4 DESIGN

In the absence of ordinances or specifications to the contrary, all designs prepared by the Specifying Professional shall be in accordance with the Steel Joist Institute Standard Specifications of latest adoption.

1.5 RESPONSIBILITY FOR DESIGN AND ERECTION

When material requirements are specified, the seller shall assume no responsibility other than to furnish the items listed in Section 5.2(a). When material requirements are not specified, the seller shall furnish the items listed in Section 5.2(a) in accordance with Steel Joist Institute Standard Specifications of latest adoption, and this code. Pertinent design information shall be provided to the seller as stipulated in Section 6.1. The seller shall identify material by showing size and type. In no case shall the seller assume any responsibility for the erection of the item furnished.

1.6 PERFORMANCE TESTS FOR OPEN WEB STEEL JOIST CONSTRUCTION

When a performance test on a joist is required, the following criteria shall be used:

a) The performance test load shall be the maximum factored uniformly distributed downward design load for the selected joist.

   (1) The TOTAL safe factored uniformly distributed load-carrying capacity tabulated in the Standard LRFD Load Table for the specific joist designation and span.

   (2) For a joist with factored loading conditions other than those found in the Standard LRFD Load Table, this is the LRFD Load Combination resulting in the highest uniformly distributed downward factored design load.

   (3) For a joist with loading conditions other than those found in the Standard ASD Load Table, this is the ASD Load Combination resulting in the highest uniformly distributed downward design load multiplied times 1.50.

b) Joist self-weight and the weight of all test materials shall be included in the calculation of applied performance test loading as appropriate for the joist during testing.

c) Loading shall be uniformly distributed across the full length of the joist top chord, and the load application shall maintain uniform distribution throughout the test. At any stage during the application of the test loading, the test load shall not be distributed in such a manner as to result in any joist component being subjected to a higher proportion of force than intended by the joist design.

d) If tested as a panel assembly, the joists shall be tested in pairs with deck, deck attachments, and bridging installed per the approved joist and deck Placement Plans. All bottom chord horizontal bridging rows shall be terminated by bracing back to the top chord of the adjacent joist or by a lateral restraint system which does not inhibit the vertical deflection of the test joist.

e) If tested singly in a load test machine apparatus, the joist chords shall be braced to prevent lateral movement, without inhibiting vertical displacement. The joist top chord shall have lateral braces located at equal spacing of no more than 36 inches (914 mm) on center. The joist bottom chord shall have lateral braces located, at a minimum, per the bottom chord bridging locations shown on the approved joist placement plan.

f) The performance test loading shall be applied at a rate of no greater than 25 plf per minute and shall be sustained for no less than 15 minutes. After the maximum test load has been removed for a minimum of 10 minutes, the remaining vertical displacement at midspan shall not exceed 20% of the vertical midspan deflection sustained under the full performance test load.

g) All costs associated with such testing shall be borne by the purchaser.

h) Joists that have been designed and manufactured and have satisfied the above performance test criteria shall be considered to satisfy the intent of the Steel Joist Institute Standard Specifications, and shall be considered acceptable for use in construction. No further proof of strength of individual joist components or connections is required.

SECTION 2.
JOISTS, JOIST GIRDERS, AND ACCESSORIES

2.1 STEEL JOISTS AND JOIST GIRDERS

Steel joists and Joist Girders shall carry the designations and meet the requirements of the Steel Joist Institute Standard Specifications of latest adoption.

K-Series, LH-Series, DLH-Series joists, and Joist Girders are furnished either underslung or square ended, with top chords either parallel, pitched one way or pitched two ways. It is not recommended that any Joist Girder, or any DLH-Series joist that exceeds 72 inches (1829 mm) in depth and has a span greater than 80 feet (24384 mm), be used in a bottom bearing configuration.

The steel joist or Joist Girder designation depth or nominal depth shall be the depth at midspan, except for double pitched joists which shall be the depth at the ridge. K-Series, LH-Series, DLH-Series joists, and Joist Girders shall be permitted to have either parallel chords or a top chord pitch of up to 1/2 inch per foot (1:24).

2.2 BEARING SEATS

Underslung types are furnished with minimum end bearing depths as shown in Table 2.2-1. A standard maximum joist bearing seat width (perpendicular to the joist length) is provided. This width shall be permitted to vary based on the joist design and joist manufacturer.

TABLE 2.2-1

STANDARD END BEARING SEAT DEPTH AND STANDARD MAXIMUM SEAT WIDTH		
JOIST SECTION NUMBER[1]	**MINIMUM BEARING DEPTH**	**MAXIMUM SEAT WIDTH[2]**
K1-12	2 ½" (64 mm)	6" (152 mm)
LH02-06	5" (127 mm)	6" (152 mm)
LH07-17, DLH10-17	5" (127 mm)	8" (203 mm)
JG	7 ½" (191 mm)	8" (203 mm)
LH/DLH18-25, JG[3]	7 ½" (191 mm)	13" (330 mm)
JG[4]	10" (254 mm)	13" (330 mm)

(1) **Last two digits of joist designation shown in Load Table.**
(2) **THE SEAT WIDTH MAY VARY BASED ON DESIGN.**
(3) **Joist Girders** with a self weight greater than 50 plf (0.73 kN/m).
(4) **Joist Girders** with a self weight equal to or greater than 150 plf (2.19 kN/m).

Joist Girder bearing seat widths vary depending on the Joist Girder size and shall be permitted to be up to 13" (330 mm) wide. The supporting structural member shall be made wide enough to accommodate the seat widths.

Where steel joists or Joist Girders are sloped, sloped end bearings may be provided where the slope exceeds 1/4 inch per foot (1:48). When sloped end bearings are required, the seat depths shall be adjusted to maintain the standard height at the shallow end of the sloped bearing. For Open Web Steel Joists, K-Series, bearing ends shall be permitted to not be beveled for slopes of 1/4 inch or less per foot (1:48). For sloped joist bearing seats refer to the sloped seat depth requirements of Table 2.2-2 and Table 2.2-3.

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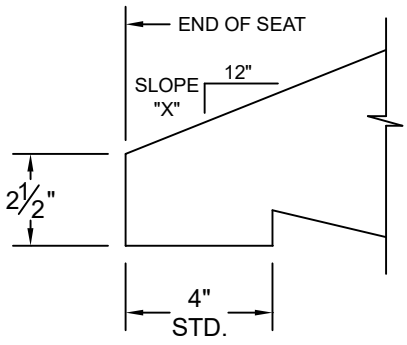
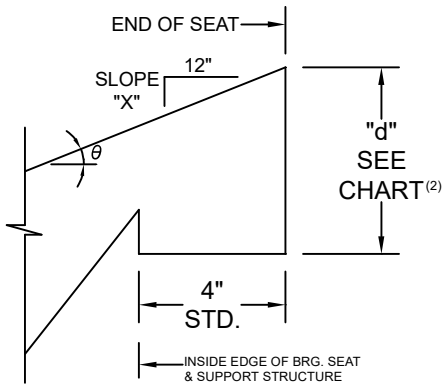
TABLE 2.2-2

SLOPED SEAT REQUIRMENTS FOR SLOPES 3/8":12 AND GREATER
K-SERIES OPEN WEB STEEL JOISTS

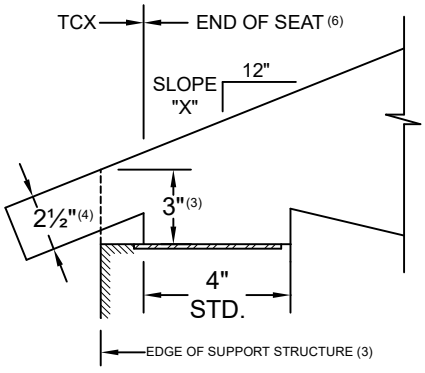
LOW END W/OUT TOP CHORD EXTENSIONS



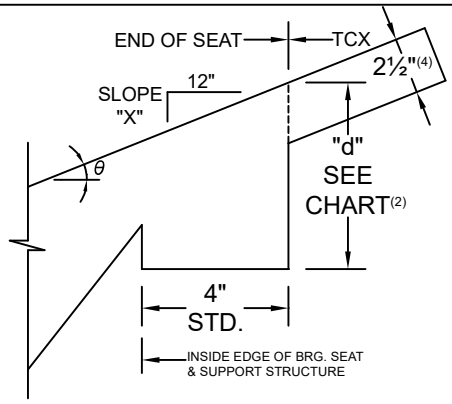
HIGH END W/OUT TOP CHORD EXTENSIONS



LOW END W/ TOP CHORD EXTENSIONS



HIGH END W/ TOP CHORD EXTENSIONS



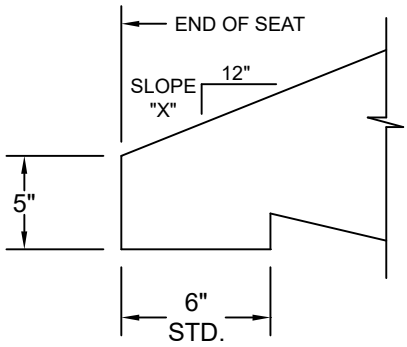
SLOPE "X":12	MINIMUM HIGH END SEAT DEPTH "d"
3/8	3 1/2
1/2	3 1/2
1	3 1/2
1 1/2	4
2	4
2 1/2	4
3	4 1/2
3 1/2	4 1/2
4	4 1/2
4 1/2	5
5	5
5 1/2	5 1/2
6	5 1/2
SEE NOTE (2) FOR SLOPE RATES GREATER THAN 6:12	

Notes:
(1) Depths shown are the minimum required for manufacturing of sloped seats. Depths may vary depending on actual bearing conditions.
(2) $d = 1/2 + 2.5/\cos\theta + 4\tan\theta$ (Rounded up to the nearest 1/2".)
(3) Clearance must be checked at outer edge of support. Increase bearing depths as required to allow passage of 2 1/2" deep extension.
(4) If extension depth greater than 2 1/2" is required, increase bearing depths accordingly.
(5) If slope is 1/4 : 12 or less, sloped seats are not required.
(6) Required bearing seat depth is determined at END OF SEAT.
(7) Also refer to SJI Specification 5.4 for special considerations of joist end reaction location.

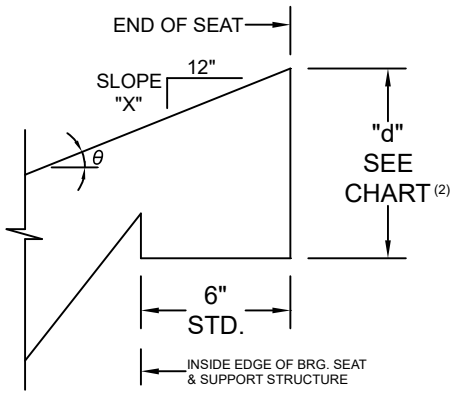
TABLE 2.2-3

SLOPED SEAT REQUIRMENTS FOR SLOPES 3/8":12 AND GREATER
LH- AND DLH-SERIES OPEN WEB STEEL JOISTS

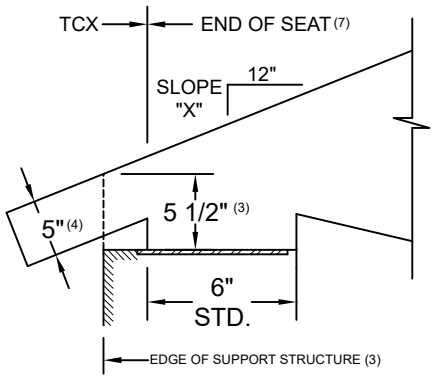
LOW END W/OUT TOP CHORD EXTENSIONS



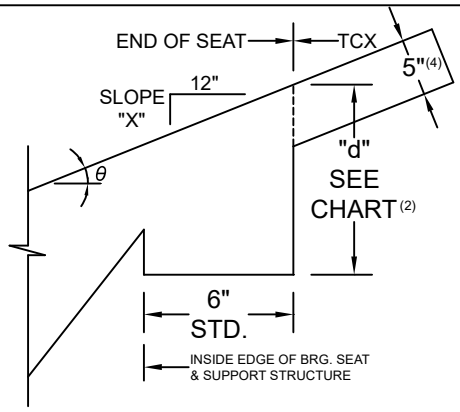
HIGH END W/OUT TOP CHORD EXTENSIONS



LOW END W/ TOP CHORD EXTENSIONS



HIGH END W/ TOP CHORD EXTENSIONS



SLOPE "X" : 12	MINIMUM HIGH END SEAT DEPTH "d"
3/8	6
1/2	6
1	6 1/2
1 1/2	6 1/2
2	7
2 1/2	7
3	7 1/2
3 1/2	7 1/2
4	8
4 1/2	8 1/2
5	8 1/2
5 1/2	9
6	9 1/2
SEE NOTE (2) FOR SLOPE RATES GREATER THAN 6:12	

Notes:
(1) Depths shown are the minimum required for manufacturing of sloped seats. Depth may vary depending on actual bearing condition.
(2) $d = 1/2 + 5 / \cos\theta + 6 \tan\theta$
(3) Clearance must be checked at outer edge of support. Increase bearing seat depth as required to allow passage of 5" deep extension.
(4) If extension depth greater than 5" is required, increase bearing depths accordingly.
(5) Add 2 1/2" to seat depth at 18 thru 25 chord section numbers. Consult with joist manufacturer for information when TCXs are present.
(6) If slope is 1/4 : 12 or less, sloped seats may not required.
(7) Required bearing seat depth shall be determined at END OF SEAT.
(8) Also refer to SJI Specification 5.4 for special considerations of joist end reaction location.

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2.3 JOIST LOCATION AND SPACING

The uniform loads as shown in the Standard Specifications Load Tables & Weight Tables of latest adoption shall be used to determine maximum joist spacing.

Where sidewalls, wall beams or tie beams are capable of supporting the floor slab or roof deck, the first adjacent joists should be placed one full space from these members. Joists are provided with camber and may have a significant difference in elevation with respect to the adjacent structure because of this camber. This difference in elevation shall be given consideration when locating the first joist adjacent to a side wall, wall beam, or tie beam.

K-Series Joists should be placed no closer than 6 inches (152 mm) to adjacent walls or structural members. LH-Series and DLH-Series Joists should be placed no closer than 12 inches (305 mm) to adjacent walls or structural members. Where partition walls are supported by parallel floor joists, there shall be at least one joist provided under each such partition, and more than one such joist shall be provided if necessary to safely support the weight of such partition and the adjacent floor. When partitions occur perpendicular to the joists, they shall be treated as concentrated loads on the supporting joists.

2.4 SPECIFYING DESIGN LOADS

Neither the Steel Joist Institute nor the joist manufacturer establishes the loading requirements for which structures are designed.

The *specifying professional* shall provide the nominal loads and load combinations as stipulated by the applicable code under which the structure is designed and shall provide the design basis (ASD or LRFD).

The *specifying professional* shall calculate and provide the magnitude and location of ALL JOIST and JOIST GIRDER LOADS. This includes all special loads (drift loads, mechanical units, net uplift, axial loads, moments, structural bracing loads, or other applied loads) which are to be incorporated into the joist or Joist Girder design. For Joist Girders, reactions from supported members shall be clearly denoted as point loads on the Joist Girder. When necessary to clearly convey the information, a load diagram or load schedule shall be provided.

The *specifying professional* shall give due consideration to the following loads and load effects:

- Ponded rain water.
- Accumulation of snow in the vicinity of obstructions such as penthouses, signs, parapets, adjacent buildings, etc.
- Wind and seismic forces. Indicate wind NET uplift in pounds per square foot (Pascals) and any other wind or seismic forces required to be incorporated into the joist or Joist Girder design. If applicable, make clear if loads specified are reduced (i.e. for ASD 0.6W=, 0.7E=) and provide any pertinent S_{DS} values. Connection details shall be designed by the *specifying professional*.
- Movable partitions. Convey any special deflection requirements as well as any stacked loading conditions.
- Type and magnitude of end moments and/or axial forces at the joist and Joist Girder end supports shall be shown on the Structural Drawings. For moment resisting joists or Joist Girders framing at or near the top of a column, due consideration shall be given to extend the column length to allow a plate type connection between the top of the joist or Joist Girder top chord and the column.
  Avoid transferring joist or Joist Girder end moments and axial forces through the bearing seat connection.
  A note shall be provided on the structural drawings stating that all moment resisting joists shall have all dead loads applied to the joist before the bottom chord struts are welded to the supporting connection whenever the design moments provided do not include dead load.
  The top and bottom chord moment connection details shall be designed by the *specifying professional*. The joist designer shall furnish the *specifying professional* with the joist detail information if requested. Additional design tools and details are available at the Steel Joist Institute's website, www.steeljoist.org.
- Joist chords shall not carry out-of-plane or torsional loads, such as from horizontal components of concentrated loads applied to laterally sloped joists, braces, screen walls, posts, etc. The structural contract drawings shall show the required structural bracing to resolve these forces.

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Where concentrated loads occur, the magnitude and location of these concentrated loads shall be shown on the structural drawings when, in the opinion of the *specifying professional*, they shall require consideration by the joist manufacturer. For nominal concentrated loads, which have been accounted for in the specified uniform design loads, a "strut" to transfer the load to a panel point on the opposite chord shall not be required provided that the sum of the concentrated loads within a chord panel does not exceed 100 pounds (445 N) and the attachments are concentric to the chord. When exact dimensional locations for concentrated loads which do not meet the above criteria are provided by the *specifying professional,* the joist shall be designed for the loads and load locations provided without the need for additional field applied web members at the specified locations.

(a) Specifying Joist Design Loads

The Steel Joist Institute Load Tables are based on uniform loading conditions and are valid for use in selecting joist sizes for gravity loads that can be expressed in terms of "pounds per linear foot" (kiloNewtons per meter) of joist.

For other loads, the Specifying Professional shall use one of the five options described below that allows:

- The estimator to price the joists.
- The joist manufacturer to design the joists in accordance with the Standard Specifications of latest adoption.
- The owner to obtain the most economical joists.

Option 1: Select a joist designation from the Standard Load Table (or specify a joist type using a uniform load in the designation) which has been determined to be adequate for all design loads. The shear and moment envelope resulting from the selected uniform load shall meet the actual shear and moment requirements. Thus, this option alone may not be adequate if large concentrated loads need to be designed for.

Option 2: Select a joist designation from the Standard Load Table (or specify a joist type using a uniform load in the designation) and also provide the load and location of any additional loads on the structural plan with a note "Joist manufacturer shall design joists for additional loads at locations shown." This option works well for a few added loads per joist with known magnitude and locations.

Option 3: For additional point loads with exact locations not known along the joist or for incidental loads, any one, or both, of the following can be specified on the structural plan in addition to option 1 or 2 above:

a) "**Design for a (__) lb. concentrated load located at any one panel point along the joist**". This is referred to as an *Add-Load*.

b) "**Design for additional bending stresses resulting from a (__) lb. concentrated load located at any location along (____) chord**". This is referred to as a *Bend-Check* and can be specified on the **top** chord, **bottom** chord, or **both top and bottom** chords. This can be used when the concentrated load is already accounted for in the joist designation, uniform load, or specified *Add-Load* yet this specified amount of load shall be permitted to also be located at any location between panel points. The additional bending stresses as a result of this load are then designed for. A *Bend-Check* load shall not exceed (*Add-Load* + 400 lbs.) A *Bend-Check* load can be specified by itself without an *Add-Load*.

c) Both (a) and (b) above can be specified with equal concentrated loads for each; or simply denote **"Design joist for a (__) lb. concentrated load at any location along the (___) chord."**

Example uses:

- *Specifying professional* selects a standard joist capable of carrying a 500 lb. RTU. However, the location and exact frame size is not yet known but the frame load shall result in two- 250 lb. point loads at least 5'-0" apart. **Specify a 250 lb. *Bend-Check.***
- Standard joist specified but not selected for 500 lb. RTU load, location not known. **Specify a 500 lb. *Add-Load* and 250 lb. *Bend-Check*.**
- Standard SJI joist selected to carry collateral load of 3 psf. *Specifying professional* wants bending from 150 lb. incidental loads to also be designed for. **Specify a 150 lb. *Bend-Check*.**

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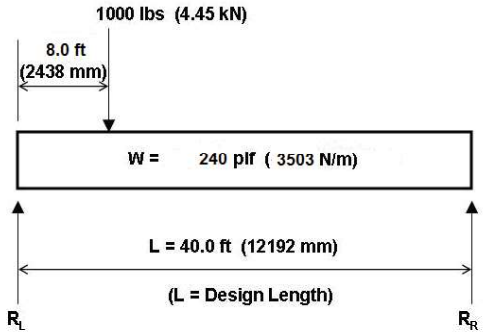
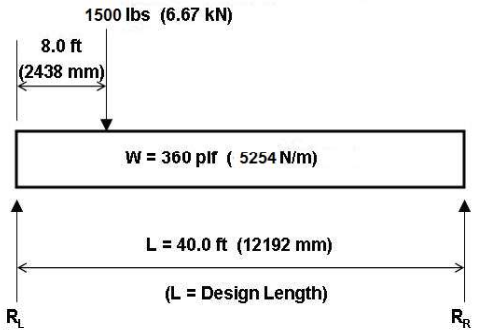
Option 4: Select a KCS joist using moment and end reaction without specifying added loads or diagrams. This option works well for concentrated loads for which exact locations are not known or for multiple loading.

a) Determine the maximum moment.

b) Determine the maximum end reaction (shear).

c) Select the required KCS joist that provides the required moment and end reaction (shear). Note that the top chord end panel is designed for axial load based on the force in the first tension web, that is based on the specified end reaction. A uniform load of 825 plf (12030 N/m) LRFD or 550 plf (8020 N/m) ASD is used to check end panel bending. If the end panel loading exceeds this, reduce the joist spacing or go to Option 5.

d) Specify on the structural drawings that an extra web shall be field applied at all concentrated loads not occurring at panel points.

OPTION 4 - ASD EXAMPLE 1:	**OPTION 4 - LRFD EXAMPLE 1:**
U.S. CUSTOMARY UNITS AND (METRIC UNITS)	**U.S. CUSTOMARY UNITS AND (METRIC UNITS)**
	
M = 625 k-in. (70.6 kN-m) R_L = 5600 lbs (24.9 kN), R_R = 5000 lbs (22.2 kN) Select a 22KCS3, M = 658 k-in. (74.3 kN-m) R = 6600 lbs (29.3 kN) Bridging section no. 9 for L = 40 ft. (12192 mm) Use 22K9 to determine bridging and stability requirements. Since a standard KCS Joist can be selected from the load table a load diagram is not required.	M = 938 k-in. (105.9 kN-m) R_L = 8400 lbs (37.37 kN), R_R = 7500 lbs (33.36 kN) Select a 22KCS3, M = 987 k-in. (111.5 kN-m) R = 9900 lbs (44.0 kN) Bridging section no. 9 for L = 40 ft. (12192 mm) Use 22K9 to determine bridging and stability requirements. Since a standard KCS Joist can be selected from the load table a load diagram is not required.

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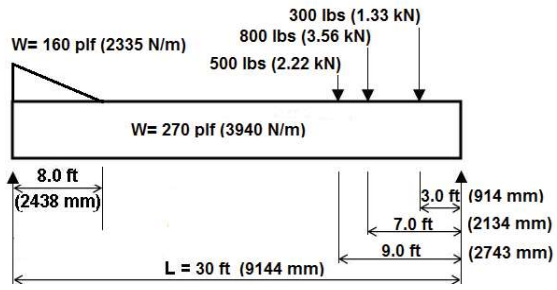
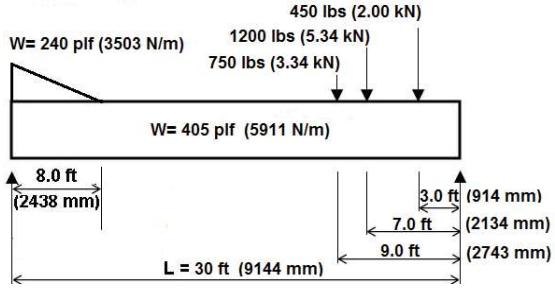
OPTION 4 - ASD EXAMPLE 2:	OPTION 4 - LRFD EXAMPLE 2:
U.S. CUSTOMARY UNITS AND (METRIC UNITS)	**U.S. CUSTOMARY UNITS AND (METRIC UNITS)**
	
M = 443 k-in. (50.1 kN-m) R_L = 5000 lbs (22.24 kN), R_R = 5340 lbs (23.75 kN) Select a 22KCS2, M = 488 k-in. (55.1 kN-m) R = 5900 lbs (26.2 kN) Bridging section no. 6 for L = 30 ft. (9144 mm) Use 22K6 to determine bridging and stability requirements. Since the maximum uniform load of 430 plf [6275 N/m) (270 plf (3940 N/m) + 160 plf (2335 N/m)] does not exceed the maximum KCS Joist uniform load of 550 plf (8020 N/m) and a standard KCS Joist can be selected from the load table, a load diagram is not required.	M = 664 k-in. (75.03 kN-m) R_L = 7500 lbs (33.36 kN), R_R = 8010 lbs (35.63 kN) Select a 22KCS2, M = 732 k-in. (82.64 kN-m) R = 8850 lbs (39.3 kN) Bridging section no. 6 for L = 30 ft. (9144mm) Use 22K6 to determine bridging and stability requirements. Since the maximum ***factored*** uniform load of 645 plf (9413 N/m) (405 plf (5911 N/m) + 240 plf (3503 N/m)) does not exceed the maximum KCS Joist uniform load of 825 plf (12030 N/m) and a standard KCS Joist can be selected from the load table, a load diagram is not required.

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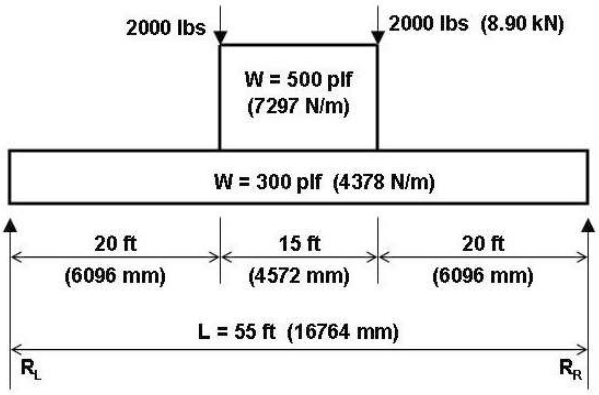
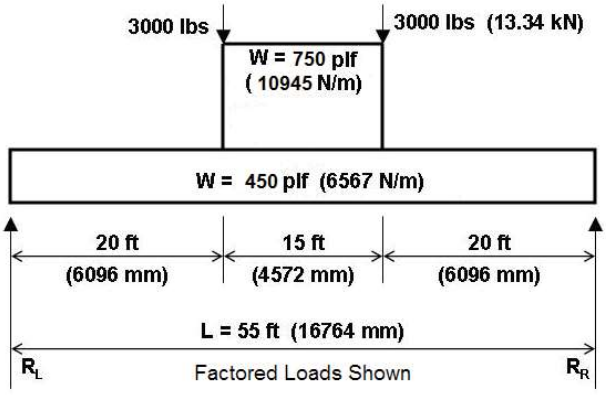
OPTION 4 - ASD EXAMPLE 3:	OPTION 4 - LRFD EXAMPLE 3:
U.S. CUSTOMARY UNITS AND (METRIC UNITS)	**U.S. CUSTOMARY UNITS AND (METRIC UNITS)**
	
M = 2910 k-in. (328.8 kN-m) $R_L = R_R$ = 14000 lbs (62.28 kN) EXCEEDS CAPACITY OF 30KCS5 (MAXIMUM KCS JOIST) AND EXCEEDS MAXIMUM UNIFORM LOAD OF 550 plf (8027 N/m). **OPTION A:** Use double joists each having a minimum moment capacity, M = 1455 k-in. (164.4 kN-m) and shear capacity, R = 7000 lbs (31.14 kN) and a uniform load of 400 plf (5838 N/m). Select two 28KCS5, M = 1704 k-in. (192.5 kN-m), R = 9200 lbs (40.9 kN). Bridging section no. 12 for L = 55 ft. (16764 mm). Use 28K12 to determine bridging and stability requirements. **OPTION B:** Select a LH-Series Joist. See OPTION 5.	M = 4365 k-in. (493.2 kN-m) $R_L = R_R$ = 21000 lbs (93.41 kN) EXCEEDS CAPACITY OF 30KCS5 (MAXIMUM KCS JOIST AND EXCEEDS MAXIMUM ***FACTORED*** UNIFORM LOAD OF 825 plf (12040 N/m). **OPTION A:** Use double joists each having a minimum moment capacity, M = 2183 k-in. (246.65 kN-m) and shear capacity, R = 10500 lbs (46.71 kN) and a uniform load of 600 plf (8756 N/m). Select two 28KCS5, M = 2556 k-in. (288.7 kN-m), R = 13800 lbs (61.3 kN). Bridging section no. 12 for L = 55 ft. (16764 mm) Use 28K12 to determine bridging and stability requirements. **OPTION B:** Select a LH-Series Joist. See OPTION 5.

Option 5: Specify a SPECIAL joist designation when the joist includes more complex loading or for conditions which need consideration of multiple potentially controlling load combinations.

a) Provide a load diagram and/or enough information on the drawings to clearly define ALL loads.

b) If the loading criteria are too complex to adequately communicate on the drawings or with a simple load diagram, then the *specifying professional* shall provide a load schedule along with the appropriate load combinations. Regardless of where the loads are shown, unfactored design loads broken down by load categories shall be provided in order to design the joists correctly with applicable load combinations.

Place the designation (e.g. 28K SP or 28LH SP) with the following note: "Joist manufacturer to design joist to support loads as shown."

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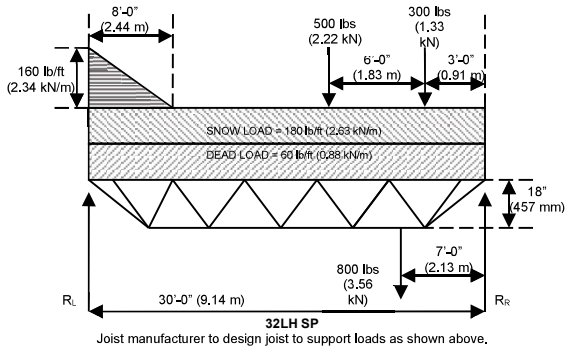
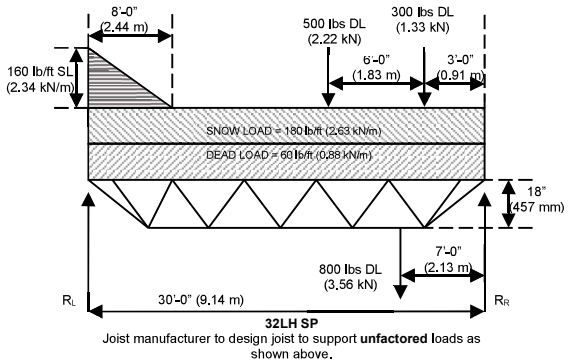
OPTION 5 - ASD EXAMPLE:	OPTION 5 - LRFD EXAMPLE:
U.S. CUSTOMARY UNITS AND (METRIC UNITS)	U.S. CUSTOMARY UNITS AND (METRIC UNITS)
Load diagram per ASCE 7 2.4.1(3), D + S	Unfactored Load diagram per ASCE 7 2.3.2(3), 1.2D+1.6S
 Joist manufacturer to design joist to support loads as shown above.	 Joist manufacturer to design joist to support **unfactored** loads as shown above.
PLEASE NOTE THE LOAD COMBINATIONS SHOWN ARE FOR REFERENCE EXAMPLES ONLY.	

CAUTION FOR OPTIONS 1 thru 5 ABOVE:

If a K-Series joist is being specified, the Specifying Professional shall compare the equivalent uniform loads derived from the maximum moment and shear to the uniform loads tabulated in the K-Series Load Table. An equivalent unfactored uniform load in excess of 550 plf (8020 N/m) or a maximum unfactored end reaction exceeding 9200 lbs. (40.9 kN) indicates that the *specifying professiona*l shall use additional joists to reduce the loading or use an LH-Series joist and make provisions for 5 inch (127 mm) deep bearing seats.

If the joist has not been designed for localized accumulation of loads that results in a point or concentrated load, this load attachment shall be made at top or bottom chord panel points. Therefore, specify on the structural drawings, "Where concentrated loads do not occur at panel points, an extra web shall be field applied from the point of attachment to a panel point on the opposite chord", and indicate the extra web size and weld requirements. When exact dimensional locations for concentrated loads are provided by the *specifying professional*, the joist shall be designed for the loads and load locations provided without the need for additional field applied web members at the specified locations.

(b) Specifying Joist Girder Design Loads

The Steel Joist Institute's Design Guide ASD or LRFD Weight Tables for Joist Girders are based on uniformly spaced panel point loading conditions and are valid for use in selecting Joist Girder sizes for gravity conditions that can be expressed in kips (kiloNewtons) per panel point on the Joist Girder. Note that anything other than point loads shall be shown unfactored or in a Load Schedule. For a given Joist Girder span, the *specifying professional* first determines the number of joist spaces. Then the panel point loads are calculated and a depth is selected. The information provided in the tables gives the Joist Girder weight in pounds per linear foot (kiloNewtons per meter) for various depths and loads.

1. The purpose of the Joist Girder Design Guide Weight Table is to assist the *specifying professional* in the selection of a roof or floor support system.
2. It is not necessary to use only the depths, spans, or loads shown in the tables.
3. Holes in chord elements present special problems that shall be considered by both the *specifying professional* and the Joist Girder Manufacturer. The sizes and locations of such holes shall be clearly indicated on the structural drawings.
4. Live load deflection rarely governs because of the relatively small span to depth ratios of Joist Girders. However, it is recommended that a breakdown of the point loads, by load category (i.e. TL/LL), be provided so specified deflection requirements and load combinations can be properly accounted for in design.

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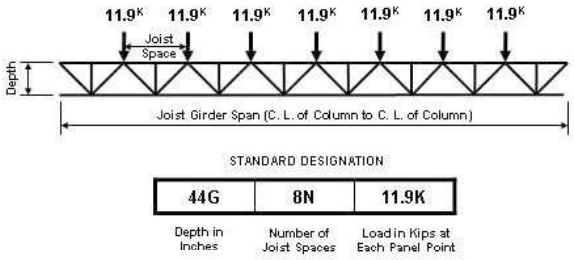
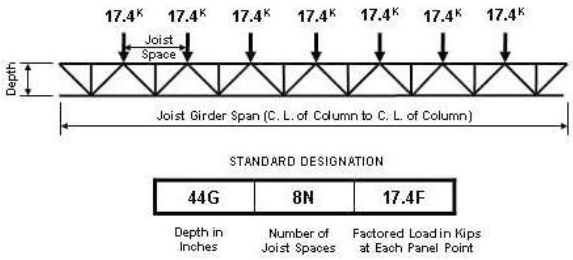
Example using *Allowable Strength Design (ASD)* and U. S. Customary units:	**Example using *Load and Resistance Factor Design (LRFD)* and U. S. Customary units:**
	
Given 42'-0" x 50'-0" bay. Joists spaced on 5'-3" centers Live Load = 30 psf Dead Load = 15 psf (includes the approximate Joist Girder weight) Total Load = 45 psf Note: Web configuration may vary from that shown. Contact joist manufacturer if exact layout must be known.	Given 42'-0" x 50'-0" bay. Joists spaced on 5'-3" centers Live Load = 30 psf x 1.6 Dead Load = 15 psf x 1.2 (includes the approximate Joist Girder weight) Total Load = 66 psf (factored) Note: Web configuration may vary from that shown. Contact joist manufacturer if exact layout must be known.
1. Determine number of actual joist spaces (N). In this example, N = 8. 2. Compute total load: Total load = 5.25 x 45 psf = 236.25 plf 3. Joist Girder Section: (Interior) a) Compute the concentrated load at top chord panel points P = 236.25 x 50 = 11,813 lbs = 11.9 kips (use 12K for depth selection). b) Select Joist Girder depth: Refer to the ASD Joist Girder Design Guide Weight Table for the 42'-0" span, 8 panel, 12.0K Joist Girder. The rule of about one inch of depth for each foot of span is a good compromise of limited depth and economy. Therefore, select a depth of 44 inches. c) The Joist Girder shall then be designated 44G8N11.9K. d) The ASD Joist Girder Design Guide Weight Table shows the weight for a 44G8N12K as 49 pounds per linear foot. The designer should verify that the weight is not greater than the weight assumed in the Dead Load above.	1. Determine number of actual joist spaces (N). In this example, N = 8. 2. Compute total factored load: Total load = 5.25 x 66 psf = 346.50 plf 3. Joist Girder Section: (Interior) a) Compute the factored concentrated load at top chord panel points P = 346.5 x 50 = 17,325 lbs = 17.4 kips (use 18K for depth selection). b) Select Joist Girder depth: Refer to the LRFD Joist Girder Design Guide Weight Table for the 42'-0" span, 8 panel, 18.0K Joist Girder. The rule of about one inch of depth for each foot of span is a good compromise of limited depth and economy. Therefore, select a depth of 44 inches. c) The Joist Girder shall then be designated 44G8N17.4F. Note that the letter "F" is included at the end of the designation to clearly indicate that this is a factored load. d) The LRFD Joist Girder Design Guide Weight Table shows the weight for a 44G8N18.0F as 49 pounds per linear foot. The designer should verify that the weight is not greater than the weight assumed in the Dead Load above.

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e) Check live load deflection:

Live load = 30 psf x 50 ft. = 1500 plf

Approximate Joist Girder moment of inertia

= 0.027 NPLd

= 0.027 x 8 x 11.9 x 42 x 44 = 4750 in.^{4}

Allowable deflection for plastered ceilings

$= L/360 = \frac{42(12)}{360} = 1.40$ in.

$$\Delta = 1.15\left[\frac{5wL^4}{384EI}\right] = \frac{1.15(5)(1.500/12)[(42)(12)]^4}{384(29000)(4750)}$$

= 0.88 in. <1.40 in., Okay

e) Check live load deflection:

Live load = 30 psf x 50 ft. = 1500 plf

Approximate Joist Girder moment of inertia

= 0.018 NPLd

= 0.018 x 8 x 17.4 x 42 x 44 = 4630 in.^{4}

Allowable deflection for plastered ceilings

$= L/360 = \frac{42(12)}{360} = 1.40$ in.

$$\Delta = 1.15\left[\frac{5wL^4}{384EI}\right] = \frac{1.15(5)(1.500/12)[(42)(12)]^4}{384(29000)(4630)}$$

= 0.90 in. <1.40 in., Okay

(c) Load Schedule Example

LOAD SCHEDULE (all loads are to be shown as unfactored)

MARK	DESIGNATION(1) (TL/LL) Joists: (plf) Girders: (kips)	LOADING(2) DL(3) (plf)	LOADING(2) LL(4) or L_r/S/R (plf)	W WIND DOWN WARD (plf)	W WIND NET(5) UPLIFT (plf)	ADD-LOAD(6) TL/LL (kips/kips)	BEND-CHECK(7) D TC (kips)	BEND-CHECK(7) D BC (kips)	REMARKS
J1	18KSP	120	185		180	1.0/0.6		0.3	Axial Loads
J2	24K7SP	85	155						Wind Moments
J3	28LHSP	110	355	95	175	0.5			Drift Loads, see diagram
G1	36G5N6.5K/3.5K				360				End Moments

(1) Joist designation loads include all uniform gravity loads. **Provide both Total and Live loads.**

(2) Loading values are not required if designation loading values are correct for deflection and load combinations.

(3) When standard SJI designations are used, the design Dead Load is required for load combinations with Wind or Seismic.

(4) The Floor or Roof Live load, Snow, or Rain load.

(5) When Net Uplift is specified for simple loading, it shall already take into account possible reduced Dead Loading present in order to create the largest Net uplift load combination. For more complex loading or when the Dead Load varies greatly for use in load combinations below, ***Gross*** uplift should be specified with the minimum and maximum Dead Loading values clearly defined. If the uplift cannot be assigned in pounds per lineal foot, a diagram can be shown for joist loading using pounds per square foot.

(6) A concentrated load applied at any panel point on both the top chord and bottom chord.

(7) Chord members shall be designed for additional bending stresses created by this concentrated Total load.

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When in-plane moments (wind load, seismic load) are specified, continuity moments (live load) **shall** also be specified. A Load Schedule that shows a complete breakdown of all loads by Load Category may be required.

AXIAL and END MOMENT LOAD SCHEDULE

MARK	DESIGNATION (TL/LL) Joists: (plf) Girders: (kips)	MIN. I (in.^{4})	AXIAL			END MOMENTS								TRANSFER DETAILS @ GRIDS
			W WIND (kips)	E SEISMIC (kips)	E_m (kips)	LIVE LOAD CONTINUITY MOMENTS (k-ft.)		LATERAL MOMENTS (k-ft.)						
								W WIND		E		E_m		
						LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	
J1	18KSP		W=18.0	E=21.8										9/S8 @ 4
J2	24K7SP					40	40	35	35					
G1	36G5N6.5K/3.5K	985				75	95	55	60					11/S8 @ B,C

When special loads as shown in the tables above are specified, the load combinations to be used for joist and Joist Girder design **shall** be provided. Two examples showing how to list load combinations are shown below:

LRFD example- Basic Load Combinations	**ASD example -** Basic Load Combinations
1. 1.4D	1. D
2. 1.2D + 1.6L + 0.5(L_r or S or R)	2. D + L
3. 1.2D + 1.6(L_r or S or R) + (1.0L or 0.5W)	3. D + (L_r or S or R)
4. 1.2D + 1.0W + 1.0L + 0.5(L_r or S or R)	4. D + 0.75L + 0.75(L_r or S or R)
5. 1.2D + 1.0E + 1.0L + 0.2S	5. D + (0.6W or 0.7E)
6. 0.9D + 1.0W	6a. D + 0.75L + 0.75(0.6W) + 0.75(L_r or S or R)
7. 0.9D + 1.0E	6b. D + 0.75L + 0.75(0.7E) +0.75S
	7. 0.6D + 0.6W
	8. 0.6D + 0.7E
Special Seismic Load Combinations	Special Seismic Load Combinations
8. (1.2 + 0.2S_{DS})D + E_h + L + 0.2S	9. (1.0 + 0.14S_{DS})D + 0.7E_h
9. (0.9 – 0.2S_{DS})D + E_h	10. (1.0 + 0.105S_{DS})D + 0.525E_h + 0.75L + 0.75(L_r or S or R)
	11. (0.6 – 0.14S_{DS})D + 0.7E_h

2.5 JOIST AND JOIST GIRDER EXTENSIONS

Steel joist and Joist Girder extensions shall be specified and designed in accordance with the requirements of the Steel Joist Institute Standard Specifications of latest adoption.

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2.6 CEILING EXTENSIONS

Ceiling extensions shall be furnished to support ceilings that are to be attached directly to the bottom of the joists. They are not furnished for the support of suspended ceilings. The ceiling extension shall be either an extended bottom chord element or a loose unit, whichever is standard with the manufacturer, and shall be of sufficient strength to properly support any specified ceiling loads.

2.7 BRIDGING AND BRIDGING ANCHORS

(a) Bridging standard with the manufacturer and complying with the Steel Joist Institute Standard Specifications of latest adoption shall be used for bridging all joists furnished by the joist manufacturer. Positive anchorage shall be provided at the ends of each bridging row at both top and bottom chords.

(b) For K-Series and LH-Series joists, horizontal bridging is recommended for spans up to and including 60 feet (18288 mm) except where the Steel Joist Institute Standard Specifications Load Tables & Weight Tables require bolted diagonal bridging for erection stability.

LH-Series and DLH-Series joists exceeding 60 feet (18288 mm) in length shall have bolted diagonal bridging for all rows.

Refer to Section 5.5 in the Steel Joist Institute Standard Specification for erection stability requirements.

Refer to Appendix B for OSHA steel joist erection stability requirements.

Horizontal bridging shall consist of continuous horizontal steel members designed per Section 5.5 in the Steel Joist Institute Standard Specifications. The material sizes listed in Table 2.7-1 meet the requirements of the specifications. Alternately, or for “load/length” designation joists, Table 2.7-2 provides the maximum horizontal bridging force, P_{br}, for various combinations of joist spacing and bridging angle size.

(c) Diagonal cross bridging consisting of angles or other shapes connected to the top and bottom chords of K-Series, LH-Series, and DLH-Series joists shall be used when required by the Steel Joist Institute Standard Specifications of latest adoption.

Diagonal bridging, when used, shall be designed per Section 5.5 in the Steel Joist Institute Standard Specifications.

When the bridging members are connected at their point of intersection, the material sizes listed in Table 2.7-3 and Table 2.7-4 meet the requirements of the specifications.

For LH-Series and DLH-Series joists, where the joist spacing is less than 70 percent of the joist depth, bolted horizontal bridging shall be provided in addition to the diagonal bridging, as shown in Table 2.7-4.

(d) When bolted diagonal erection bridging is required, the following shall apply:

1. The bridging shall be indicated on the joist placement plans.
2. The joist placement plans shall be the exclusive indicator for the proper placement of this bridging.
3. Shop installed bridging clips, or functional equivalents, shall be provided where the bridging bolts to the steel joist.
4. When two pieces of bridging are attached to a steel joist by a common bolt, the nut that secures the first piece of bridging shall not be removed from the bolt for the attachment of the second piece.
5. Bridging attachments shall not protrude above the top chord of the steel joists.
6. See Table 2.7-5 for bolt sizes that meet the connection requirements of the Steel Joist Institute Standard Specifications Section 5.5.

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TABLE 2.7-1

MAXIMUM JOIST SPACING FOR HORIZONTAL BRIDGING
SPANS OVER 60 ft. (18.3 m) REQUIRE BOLTED DIAGONAL BRIDGING

JOIST SECTION NUMBER[1]	Nominal Unfactored Force P_{br} lbs (N)	BRIDGING MATERIAL SIZE[2] Equal Leg Angles					
		1 x 7/64 (25 x 3 mm) r = 0.20" (5.08 mm)	**1-1/4 x 7/64 (32 x 3 mm) r = 0.25" (6.35 mm)**	**1-1/2 x 7/64 (38 x 3 mm) r = 0.30" (7.62 mm)**	**1-3/4 x 7/64 (45 x 3 mm) r = 0.35" (8.89 mm)**	**2 x 1/8 (52 x 3 mm) r = 0.40" (10.16 mm)**	**2-1/2 x 5/32 (64 x 4 mm) r = 0.50" (12.70 mm)**
		ft.-in. (mm)	ft.-in. (mm)	ft.-in. (mm)	ft.-in. (mm)	ft.-in. (mm)	ft.-in. (mm)
K1 – 8	340 (1512)	5'-0" (1524)	6'–3" (1905)	7'–6" (2286)	8'-9" (2667)	10'–0" (3048)	12'–6" (3810)
K9-10, LH02-03	450 (2002)	4'-4" (1321)	6'-1" (1854)	7'–6" (2286)	8'–9" (2667)	10'–0" (3048)	12'–6" (3810)
K11-12, LH04-05	560 (2491)	3'–11"(1194)	5'–6" (1676)	7'–4" (2235)	8'–9" (2667)	10'–0" (3048)	12'–6" (3810)
LH06-08	750 (3336)		4'–9" (1448)	6'–3" (1905)	7'–11" (2413)	10'–0" (3048)	12'–6" (3810)
LH09	850 (3781)		4'–5" (1346)	5'–10" (1778)	7'–5" (2261)	9'–9" (2972)	12'–6" (3810)
LH/DLH10	900 (4003)		4'–4" (1321)	5'–8" (1727)	7'–3" (2210)	9'–5" (2870)	12'–6" (3810)
LH/DLH11	950 (4226)		4'–2" (1270)	5'–7" (1702)	7'–0" (2134)	9'–2" (2794)	12'–6" (3810)
LH/DLH12	1100 (4893)		3'-11" (1194)	5'–2" (1575)	6'–8" (2032)	8'–6" (2591)	12'-6" (3810)
LH/DLH13	1200 (5338)		3'-9" (1143)	4'–11" (1499)	6'–3" (1905)	8'-2" (2489)	12-6" (3810)
LH/DLH14	1300 (5783)			4'-9" (1448)	6'-0" (1829)	7'-10" (2388)	12'-4" (3759)
LH/DLH15	1450 (6450)			4'-6" (1372)	5'-8" (1727)	7'-5" (2261)	11'-8" (3556)
LH/DLH16–17	1850 (8229)			4'-0" (1219)	5'-0" (1524)	6'-7"(2007)	10'-4" (3150)
LH/DLH18–20	2350 (10453)			3'-7" (1067)	4'-4" (1321)	5'-10" (1778)	9'-1" (2769)
LH/DLH21–22	3150 (14012)				3'-10" (1168)	5'-0" (1524)	7'-11" (2413)
LH/DLH23–24	4130 (18371)				3'-4" (1016)	4'-5" (1346)	6'-11" (2108)
LH/DLH25	4770 (21218)					4'-1"(1245)	6'-5" (1956)

(1) Refer to last two digit(s) of Joist Designation
(2) Connection to joist shall resist force listed in the Steel Joist Institute Standard Specifications Table 5.5-2

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TABLE 2.7-2

MAXIMUM BRIDGING FORCE (P_{br}) FOR HORIZONTAL BRIDGING (lbs)							
JOIST SPACING (ft.-in.)	BRIDGING ANGLE SIZE (EQUAL LEG ANGLE)						
	1 x 7/64 r = 0.20"	1¼ x 7/64 r = 0.25"	1½ x7/64 r = 0.30"	1¾ x 7/64 r = 0.35"	2 x 1/8 r = 0.40"	2½ x 5/32 r = 0.50"	3 x 3/16 r = 0.60"
2'-0"	2150	3960	5600				
2'-6"	1370	2730	4410	5910			
3'-0"	950	1890	3290	4850			
3'-6"	700	1390	2420	3840	6180		
4'-0"	530	1060	1850	2960	5030		
4'-6"	420	840	1460	2340	4000		
5'-0"	340	680	1180	1890	3240		
5'-6"	-	560	980	1560	2670		
6'-0"	-	470	820	1310	2250	5490	
6'-6"	-	-	700	1120	1910	4680	
7'-0"	-	-	600	960	1650	4030	
7'-6"	-	-	520	840	1440	3510	
8'-0"	-	-	-	740	1260	3090	
8'-6"	-	-	-	650	1120	2740	5680
9'-0"	-	-	-	-	1000	2440	5060
9'-6"	-	-	-	-	890	2190	4540
10'-0"	-	-	-	-	810	1970	4100
10'-6"	-	-	-	-	-	1790	3720
11'-0"	-	-	-	-	-	1630	3390
11'-6"	-	-	-	-	-	1490	3100
12'-0"	-	-	-	-	-	1370	2850

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TABLE 2.7-3

K, LH, and DLH SERIES JOISTS
MAXIMUM JOIST SPACING FOR DIAGONAL BRIDGING[1]

JOIST DEPTH	BRIDGING ANGLE SIZE – (EQUAL LEG ANGLE)[2]							
	1 x 7/64 (25 x 3 mm) **r = 0.20"** (5.08 mm)	**1-1/4 x 7/64** (32 x 3 mm) **r = 0.25"** (6.35 mm)	**1-1/2 x 7/64** (38 x 3 mm) **r = 0.30"** (7.62 mm)	**1-3/4 x 7/64** (45 x 3 mm) **r = 0.35"** (8.89 mm)	**2 x 1/8** (50 x 3 mm) **r = 0.40"** (10.16 mm)	**2 ½ x 5/32** (64x 4 mm) **r=0.50"** (12.70 mm)	**3 x 3/16** (76 x 5 mm) **r = 0.60"** (15.24 mm)	**3 ½ x 1/4** (89 x 6 mm) **r = 0.70"** (17.78 mm)
in. (mm)	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**	**ft.-in. (mm)**
12" (305)	6'-7" (2007)	8'-3" (2514)	9'-11"(3022)	11'-7" (3530)	13'-3"(4038)	16'-7"(5055)	19'-11"(6070)	23'-3"(7086)
14" (356)	6'-6" (1981)	8'-3" (2514)	9'-11"(3022)	11'-7" (3530)	13'-3"(4038)	16'-7"(5055)	19'-11"(6070)	23'-3"(7086)
16" (406)	6'-6" (1981)	8'-2" (2489)	9'-10"(2997)	11'-7" (3530)	13'-3"(4038)	16'-7"(5055)	19'-11"(6070)	23'-3"(7086)
18" (457)	6'-6" (1981)	8'-2" (2489)	9'-10"(2997)	11'-6" (3505)	13'-3"(4038)	16'-7"(5055)	19'-11"(6070)	23'-3"(7086)
20" (508)	6'-5" (1955)	8'-2" (2489)	9'-10"(2997)	11'-6" (3505)	13'-2"(4013)	16'-7"(5055)	19'-11"(6070)	23'-3"(7086)
22" (559)	6'-4" (1930)	8'-1" (2463)	9'-10"(2997)	11'-6" (3505)	13'-2"(4013)	16'-6"(5029)	19'-11"(6070)	23'-3"(7086)
24" (610)	6'-4" (1930)	8'-1" (2463)	9'-9" (2971)	11'-5" (3479)	13'-2"(4013)	16'-6"(5029)	19'-10"(6045)	23'-3"(7086)
26" (660)	6'-3" (1905)	8'-0" (2438)	9'-9" (2971)	11'-5" (3479)	13'-1"(3987)	16'-6"(5029)	19'-10"(6045)	23'-2"(7061)
28" (711)	6'-3" (1905)	8'-0" (2438)	9'-8" (2946)	11'-5" (3479)	13'-1"(3987)	16'-6"(5029)	19'-10"(6045)	23'-2"(7061)
30" (762)	6'-2" (1879)	7'-11 (2413)	9'-8" (2946)	11'-4" (3454)	13'-1"(3987)	16'-5"(5004)	19'-10"(6045)	23'-2"(7061)
32" (813)	6'-1" (1854)	7'-10"(2387)	9'-7" (2921)	11'-4" (3454)	13'-0" (3962)	16'-5"(5004)	19'-9"(6020)	23'-2"(7061)
36" (914)	5'-11"(1803)	7'-9" (2362)	9'-6" (2895)	11'-3" (3429)	12'-11"(3973)	16'-4"(4979)	19'-9"(6020)	23'-1"(7035)
40" (1016)	5'-9"(1753)	7'-7" (2311)	9'-5" (2870)	11'-2" (3403)	12'-10"(3911)	16'-4"(4979)	19'-8"(5994)	23'-1"(7035)
44" (1118)	5'-6"(1676)	7'-5" (2260)	9'-3" (2819)	11'-0" (3352)	12'-9" (3886)	16'-3"(4953)	19'-7"(5969)	23'-0"(7010)
48" (1219)	5'-4"(1626)	7'-3" (2209)	9'-2" (2794)	10'-11"(3327)	12'-8" (3860)	16'-2"(4928)	19'-7"(5969)	22'-11"(6985)
52" (1321)	5'-0"(1524)	7'-1"(2159)	9'-0" (2743)	10'-10" (3302)	12'-7" (3835)	16'-1"(4902)	19'-6"(5943)	22'-11"(6985)
56" (1422)	4'-9"(1448)	6'-10"(2083)	8'-10"(2692)	10'-8" (3251)	12'-5" (3784)	16'-0"(4877)	19'-5"(5918)	22'-10"(6960)
60" (1524)	4'-4"(1321)	6'-8"(2032)	8'-7" (2616)	10'-6" (3200)	12'-4" (3759)	15'-10"(4826)	19'-4"(5893)	22'-9"(6935)
64" (1626)	**	6'-4"(1931)	8 -5" (2565)	10'-4" (3149)	12'-2" (3708)	15'-9" (4801)	19'-3"(5867)	22'-8"(6909)
68" (1727)	**	6'-1"(1854)	8'-2" (2489)	10'-2" (3098)	12'-0" (3657)	15'-8" (4775)	19'-2"(5842)	22'-7"(6884)
72" (1829)	**	5'-9"(1753)	8'-0" (2438)	10'-0" (3048)	11'-10"(3606)	15'-6" (4724)	19'-1" (5816)	22'-6" (6858)
80" (2032)	**	5'-0"(1524)	7'-5"(2260)	9'-6" (2895)	11'-6" (3505)	15'-3" (4648)	18'-10"(5740)	22'-4" (6808)
88" (2235)		**	6'-9"(2058)	9'-0" (2743)	11'-1" (3378)	14'-11"(4546)	18'-7" (5664)	22'-1" (6731)
96" (2438)		**	6'-0"(1829)	8'-5" (2565)	10'-8"(3251)	14'-7" (4445)	18'-4" (5588)	21'-11"(6680)
104" (2642)			**	7'-9" (2362)	10'-1"(3073)	14'-2" (4318)	18'-0" (5486)	21'-8" (6604)
112" (2845)			**	7'-0" (2134)	9'-6"(2895)	13'-9" (4191)	17'-8" (5385)	21'-4" (6503)
120" (3048)				**	8'-9"(2667)	13'-4"(4064)	17'-3" (5258)	21'-1" (6426)

**** INTERPOLATION BELOW THE MINIMUM VALUES SHOWN IS NOT ALLOWED.**

1) SEE TABLE 2.7-4 FOR MINIMUM JOIST SPACE FOR DIAGONAL ONLY BRIDGING.
2) In the shaded range of the Table, for LH23, 24,and 25, compressive strength requirements may control, reducing the maximum joist spacing shown. Either select a larger bridging angle size (outside of the shaded area) or check compression strength (Ref. Section 2.7(c)) for LH23, 24, and 25.

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TABLE 2.7-4

LH AND DLH SERIES JOISTS HORIZONTAL PLUS DIAGONAL BRIDGING REQUIREMENTS		
JOIST DEPTH	**MINIMUM JOIST SPACE FOR DIAGONAL ONLY BRIDGING** **(0.70 x DEPTH)***	**HORIZONTAL AND DIAGONAL MINIMUM ANGLE SIZE REQUIRED** FOR JOIST SPACING < (0.70 X DEPTH) AND JOIST SPANS > 60'-0" (18.3 m)
in. (mm)	**ft.-in. (mm)**	**in. (mm)**
52" (1321)	3'- 0" (914)	1" x 1" x 7/64" (25 x 3)
56" (1422)	3'- 3" (990)	1" x 1" x 7/64" (25 x 3)
60" (1524)	3'- 6" (1066)	1" x 1" x 7/64" (25 x 3)
64" (1626)	3'- 8" (1117)	1¼" x 1¼" x 7/64" (32 x 3)
68" (1727)	3'-11" (1193)	1¼" x 1¼" x 7/64" (32 x 3)
72" (1829)	4'- 2" (1270)	1¼" x 1¼" x 7/64" (32 x 3)
80" (2032)	4'- 8" (1422)	1¼" x 1¼" x 7/64" (32 x 3)
88" (2235)	5'- 1" (1549)	1 ½" x 1 ½" x 7/64" (38 x 3)
96" (2438)	5'- 7" (1702)	1 ½" x 1 ½" x 7/64" (38 x 3)
104" (2642)	6'- 0" (1829)	1 ¾" x 1 ¾" x 7/64" (44 x 3)
112" (2845)	6'- 6" (1981)	1 ¾" x 1 ¾" x 7/64" (44 x 3)
120" (3048)	7'- 0" (2134)	2" x 2" x1/8" (51 x 3)
*NOTE: WHEN THE JOIST SPACING IS LESS THAN 0.70 x JOIST DEPTH, BOLTED HORIZONTAL BRIDGING SHALL BE USED IN ADDITION TO DIAGONAL BRIDGING.		

TABLE 2.7-5

BOLT SIZES WHICH MEET BOLTED BRIDGING CONNECTION REQUIREMENTS		
JOIST SERIES	**SECTION NUMBER***	**BOLT DIAMETER**
K	ALL	3/8" (10 mm) A307
LH/DLH	2 – 12	3/8" (10 mm) A307
LH/DLH	13 – 17	1/2" (13 mm) A307
LH/DLH	18 – 20	5/8" (16 mm) A307
LH/DLH	21 – 22	5/8" (16 mm) A325
LH/DLH	23 – 25	3/4" (19 mm) A325
*REFER TO LAST DIGIT(S) OF JOIST DESIGNATION NOTE: WASHERS SHALL BE USED WITH SLOTTED OR OVERSIZED HOLES. BOLTS SHALL BE TIGHTENED TO A MINIMUM SNUG TIGHT CONDITION.		

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2.8 HEADERS

Where the end reaction of a steel joist is supported by a header, as outlined and defined in Section 5.2(a), and is not more than 10,000 pounds (44482 N), the header shall be furnished by the Seller. Such headers shall be any type standard with the joist manufacturer. Conditions involving headers shall be investigated during erection and, if necessary, provisions made to provide a safe condition. Headers are not provided for steel joists with end reactions greater than 10,000 pounds (44482 N).

2.9 BOTTOM CHORD LATERAL BRACING FOR JOIST GIRDERS

Bottom chord lateral bracing shall be furnished as required to prevent lateral movement of the bottom chord of the Joist Girder and to prevent the ratio of chord length to chord radius of gyration from exceeding that specified in the Steel Joist Institute Standard Specifications of latest adoption. The lateral bracing shall be that which is standard with the joist manufacturer, and shall be sufficient to properly brace the bottom chord of the Joist Girder.

2.10 CONNECTIONS

The adequacy of the end anchorage connection (bolted or welded) between the joist or Joist Girder bearing seat and the supporting structure is the responsibility of the *specifying professional*. The contract documents shall clearly illustrate the end anchorage connection. Forces to be considered include end moments, axial loads, and diaphragm boundaries. Particular attention is required where there is net uplift.

Welded End Anchorage for Uplift
The strength of the joist bearing seat for an uplift loading combination is a function of both the joist seat thickness and length of the end anchorage welds. The minimum end anchorage welds as shown in the Steel Joist Institute Standard Specifications Table 5.7-1 may not develop the full capacity of the joist seat assembly for the specified uplift resistance. When the support dimensions allow, it is recommended the *specifying professional* use a small fillet weld thickness in conjunction with a longer weld length for the connection design to facilitate the design of the joist bearing seat. The joist manufacturer will provide a seat of sufficient thickness and strength to resist the uplift end reaction resulting from the specified uplift. For additional information, including tables for welded end anchorage uplift capacities, refer to Steel Joist Institute Technical Digest 6, “Structural Design of Steel Joist Roofs to Resist Uplift Loads”

Bolted End Anchorage for Uplift
Typically, joists and Joist Girders with bolted end anchorage also require a final connection by welding in order to provide lateral stability to the supporting member. However, only the bolts are relied on to provide uplift anchorage. The bolt type and diameter designed by the *specifying professional* shall provide sufficient tensile strength to resist the uplift end reaction resulting from the specified uplift. Bolts of higher strength than the minimum required by the Steel Joist Institute Standard Specifications may be required.

When the bearing seats are detailed for a bolted connection, bolts shall be installed. If the bolts are not installed, an equivalent welded connection may be permitted by the *specifying professional*, provided the weld is deposited in the slot on the side farthest from the edge of the seat. Additional weld required to meet that specified for the welded connection shall be placed at a location on the seat away from the outer edge of the slot as shown in Figure 2.10-1.
For additional information, including tables for bolted end anchorage uplift capacities, refer to Steel Joist Institute Technical Digest 6, “Structural Design of Steel Joist Roofs to Resist Uplift Loads”

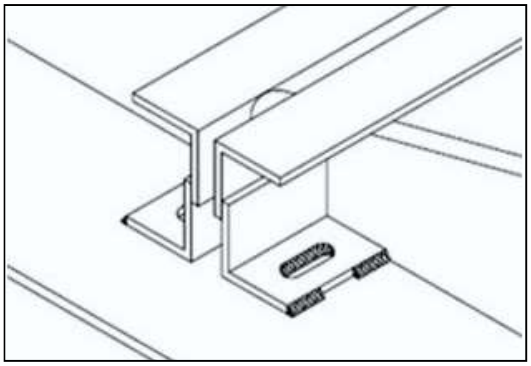

Figure 2.10-1

SECTION 3.
MATERIALS

3.1 STEEL

The steel used in the manufacture of joists and Joist Girders shall comply with the Steel Joist Institute Standard Specifications of latest adoption.

3.2 PAINT

(a) Standard Shop Paint - The shop coat of paint, when specified, shall comply with the Steel Joist Institute Standard Specifications of latest adoption.

(b) Disclaimer - The typical shop applied paint that is used to coat steel joists and Joist Girders is a dip applied, air dried paint. The paint is intended to be an impermanent and provisional coating which shall protect the steel for only a short period of exposure in ordinary atmospheric conditions.

Since most joists and Joist Girders are painted using a standard dip coating, the coating shall be permitted to not be uniform and shall be permitted to include drips, runs, and sags. Compatibility of any coating including fire protective coatings applied over the standard shop paint shall be the responsibility of the specifier and/or painting contractor.

The shop applied paint may require field touch-up/repair as a result of, but not limited to, the following:

1. Abrasions from: Bundling, banding, loading and unloading, chains, dunnage during shipping, cables and chains during erection, bridging, installation, and other handling at the jobsite.
   NOTE: Rusting should be expected at any abrasion.
2. Dirt.
3. Diesel smoke.
4. Road salt.
5. Weather conditions during storage.

The joist manufacturer shall not be responsible for the condition of the paint if it is not properly protected after delivery.

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SECTION 4.
INSPECTION

Inspections shall be made in accordance with Section 5.14 of the Steel Joist Institute Standard Specifications of latest adoption.

SECTION 5.
ESTIMATING

5.1 PLANS FOR BIDDING

Plans to serve as the basis for bids shall show the character of the work with sufficient clarity to permit making an accurate estimate and shall show the following:

- Designation and location of Materials [see Section 5.2(a)], including any special design or configuration requirements
- Locations and elevations of all steel and concrete supporting members and bearing walls
- Location and length of joist extended ends
- Location and size of all openings in floors and roofs
- Location of all partitions
- Loads and their locations as defined in Section 6.1
- Construction and thickness of floor slabs, roof deck, ceilings and partitions
- Joists or Joist Girders requiring extended bottom chords
- Paint, if other than manufacturer's standard

5.2 SCOPE OF ESTIMATE

(a) Unless otherwise specified, the following items shall be included in the estimate, and requirements shall be determined as outlined in Section 6.1:

- Steel Joists
- Joist Girders
- Joist Substitutes
- Joist Extended Ends
- Ceiling Extensions
- Extended bottom chord used as strut
- Bridging
- Joist Girder bottom chord bracing
- Headers which are defined as members supported by and carrying Open Web Steel Joists with end reactions of no more than 10,000 lbs. (44482 N)
- One shop coat of paint, when specified, shall be in accordance with Section 3.2

(b) The following items shall not be included in the estimate but shall be permitted to be quoted and identified by the joist manufacturer as separate items:

- Headers carrying Open Web Steel Joists with end reactions greater than 10,000 lbs. (44482 N)
- Headers for Deep Longspan Steel Joists, **DLH-**Series

- Reinforcement in slabs over joists
- Centering material, decking, and attachments
- Miscellaneous framing between joists for openings at ducts, dumbwaiters, ventilators, skylights, etc.
- Loose individual or continuous bearing plates and bolts or anchors for such plates
- Erection bolts for joist and Joist Girder end anchorage
- Horizontal bracing in the plane of the top and bottom chords from joist to joist or joist to structural framing and walls
- Bridging anchors and anchorage
- Wood nailers
- Moment plates
- Special joist configuration or bridging layouts for ductwork or sprinkler systems
- Shear studs

SECTION 6.
PLANS AND SPECIFICATIONS

6.1 PLANS FURNISHED BY BUYER

The Buyer shall furnish the Seller plans and specifications as prepared by the *specifying professional* showing all Material requirements and steel joist and/or steel Joist Girder designations, the layout of walls, columns, beams, girders and other supports, as well as floor and roof openings and partitions correctly dimensioned. The elevation of finished floors, roofs, and bearings shall be shown.

(a) Loads

The *specifying professional* shall clearly provide all design loads as described in Section 2.4 This includes the live loads to be used, the wind uplift if any, the weights of partitions and the location and amount of any special loads, such as monorails, fans, blowers, tanks, etc.

(b) Connections

Minimum end anchorage for simple span gravity loading shall be in accordance with Steel Joist Institute Standard Specifications of latest adoption, Section 5.7. The end anchorage of a steel joist or Joist Girder is the connection of the joist or Joist Girder bearing seat to the support of the joist or Joist Girder.

The adequacy of the end anchorage connection (bolted or welded) between the joist or Joist Girder bearing seat and the supporting structure is the responsibility of the *specifying professional*. The contract documents shall clearly illustrate the end anchorage connection.

The joist manufacturer is responsible for the design of the bearing seats of joists or Joist Girders for the loads designated by the *specifying professional* in the contract documents.

The *specifying professional* is responsible for bridging termination connections. The contract documents shall clearly illustrate these termination connections.

(c) Special Considerations

The *specifying professional* shall indicate on the construction documents special considerations including:

1) Profiles for non-standard joist and Joist Girder configurations (Standard joist and Joist Girder configurations are as indicated in the Steel Joist Institute Standard Specifications of latest adoption).
2) Oversized or other non-standard web openings
3) Extended Ends

4) Deflection criteria for live and total loads for non-SJI standard joists
5) Non-SJI standard bridging

6.2 PLANS FURNISHED BY SELLER

The Seller shall furnish the buyer with steel joist placement plans to show the material as specified on the construction documents and are to be utilized for field installation in accordance with specific project requirements as stated in Section 6.1. Steel placement plans shall include, at a minimum, the following:

a) Listing of all applicable loads as stated in Section 6.1 and used in the design of the steel joists and Joist Girders as specified in the construction documents.

b) Profiles for non-standard joist and Joist Girder configurations (standard joist and Joist Girder configurations are as indicated in the Steel Joist Institute Standard Specifications of latest adoption).

c) Connection requirements for:

1) Joist supports
2) Joist Girder supports
3) Field splices
4) Bridging attachments

d) Deflection criteria for live load and total loads for non-SJI standard joists.

e) Size, location, and connections for all bridging

f) Joist headers

All Material shall be identified with its mark which also appears on the Bill of Materials. The shop paint shall be as noted on the joist placement plans. **Steel joist placement plans do not require the seal and signature of the joist manufacturer's registered design professional.**

6.3 DISCREPANCIES

The *specifying professional's* bid plans and specifications shall be assumed to be correct in the absence of written notice from the Buyer to the contrary. When plans are furnished by the Buyer that do not agree with the Architect's bid plans, such detailed plans shall be considered as a written notice of change of plans. However, it shall be the Buyer's responsibility to advise the Seller of those changes which affect the joists or Joist Girders.

6.4 APPROVAL

When joist placement plans are furnished by the Seller, they are submitted to the Buyer and owner for examination and approval. The Seller allows a maximum of fourteen (14) calendar days in their schedule for the return of placement plans noted with the owner's and customer's approval, or approval subject to corrections as noted. The Seller makes the corrections, furnishes corrected prints for field use to the owner/customer and is released by the owner/customer to start joist manufacture.

Approval by the owner/customer of the placement plans, sections, notes and joist schedule prepared by the Seller indicates that the Seller has correctly interpreted the contract requirements, and is released by the owner/customer to start joist manufacture. This approval constitutes the owner's/customer's acceptance of all responsibility for the design adequacy of any detail configuration of joist support conditions shown by the Seller as part of the preparation of these placement plans.

Approval does not relieve the Seller of the responsibility for accuracy of detail dimensions on the plans, nor the general fit-up of joists to be placed in the field.

6.5 CHANGES

When any changes in plans are made by the Buyer (or the buyer's representative) either prior to or after approval of detailed plans, or when any Material is required and was not shown on the plans used as the basis of the bid, the cost of such changes and/or extra Material shall be paid by the Buyer at a price to be agreed upon between Buyer and Seller.

6.6 CALCULATIONS

The Seller shall design the steel joists and/or steel Joist Girders in accordance with the current Steel Joist Institute Standard Specifications of latest adoption to support the load requirements of Section 6.1. The *specifying professional* may require submission of the steel joist and Joist Girder calculations as prepared by a registered design professional responsible for the product design. If requested by the *specifying professional*, the steel joist manufacturer shall submit design calculations with a cover letter bearing the seal and signature of the joist manufacturer's registered design professional. In addition to standard calculations under this seal and signature, submittal of the following shall be included:

a) Non-SJI standard bridging details (e.g. for cantilevered conditions, net uplift, etc.)

b) Connection details for:

   1) Non-SJI standard connections (e.g. flush framed or framed connections)
   2) Field splices
   3) Joist headers

SECTION 7.
HANDLING AND ERECTION

The Buyer and Erector shall comply with the requirements of the Steel Joist Institute Standard Specifications of latest adoption in the handling and erection of Material. For additional coverage of this topic, refer to the Steel Joist Institute's Technical Digest 9, "Handling and Erection of Steel Joists and Joist Girders".

The Buyer and/or Erector shall check all materials on arrival at job site and promptly report to Seller any discrepancies and/or damages.

When joists cannot be delivered as a single piece, they shall be permitted to be delivered in several pieces therefore requiring the pieces to be spliced together in the field. The manufacturer's instructions SHALL be followed to ensure matching pieces are joined, proper bolts are used, and any required bolt tensioning is incorporated.

All joists shall be handled by methods which avoid damage to any part of the joist. For long **LH-**Series joists, **DLH-**Series joists, or Joist Girders this may require the use of spreader bars, multiple hoisting cables, or multiple cranes as necessary to safely handle the joist. Hoisting cables shall be attached at panel points and shall be at panel point locations selected to minimize erection stresses.

The current OSHA, 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R- Steel Erection, refers to certain joists at or near columns to be designed with sufficient strength to allow one employee to release the hoisting cable without the need for erection bridging. **This STANDARD shall not be interpreted that any joist at or near a column line is safe to support an employee without bridging installed.** Many limitations exist that prevent these joists from being designed to safely allow an employee on an un-bridged joist. Because of these limitations these joists shall be erected by incorporating erection methods ensuring joist stability and either:

1) Installing bridging or otherwise stabilizing the joist prior to releasing the hoisting cable, or
2) Releasing the hoisting cable without having a worker on the joist.

A steel joist or Joist Girder shall not be placed on any support structure unless such structure is stabilized. When steel joists or Joist Girders are landed on a structure, they shall be secured to prevent unintentional displacement prior to installation.

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A bridging terminus point shall be established before joist bridging is installed.

Steel joist and Joist Girders shall not be used as anchorage points for a fall arrest system unless written directions to do so is obtained from a "qualified person". (For definition of "qualified person" see Code of Federal Regulations (CFR), Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R- Steel Erection, §1926.751 Definitions, January 18, 2001, Washington, D.C.)

No modification that affects the strength of a steel joist or Joist Girder shall be made without the written approval of the project engineer of record.

The Seller shall not be responsible for the condition of paint finish on Material if it is not properly protected after delivery.

The Seller shall not be responsible for improper fit of Material due to inaccurate construction work.

SECTION 8.
BUSINESS RELATIONS

8.1 PRESENTATION OF PROPOSALS

All proposals for furnishing Material shall be made on a sales contract form. After acceptance by the Buyer, these proposals shall be approved or executed by a qualified official of the Seller. Upon such approval the proposal becomes a contract.

8.2 ACCEPTANCE OF PROPOSALS

All proposals are intended for prompt acceptance and are subject to change without notice.

8.3 BILLING

Contracts on a lump sum basis are to be billed proportionately as shipments are made.

8.4 PAYMENT

Payments shall be made in full on each invoice without retention.

8.5 ARBITRATION

All business controversies which cannot be settled by direct negotiations between Buyer and Seller shall be submitted to arbitration. Both parties shall sign a submission to arbitration and if possible agree upon an arbitrator. If they are unable to agree, each shall appoint an arbitrator and these two shall appoint a third arbitrator. The expenses of the arbitration shall be divided equally between the parties, unless otherwise provided for in the agreements to submit to arbitration. The arbitrators shall pass final judgment upon all questions, both of law and fact, and their findings shall be conclusive.

American National Standard SJI 100 - 2020

STANDARD SPECIFICATION

FOR K-SERIES, LH-SERIES, AND DLH-SERIES OPEN WEB STEEL JOISTS AND FOR JOIST GIRDERS.

K-Series Adopted by the Steel Joist Institute November 4, 1985
LH/DLH-Series Adopted by the Steel Joist Institute May 10, 2006
Joist Girders Adopted by the Steel Joist Institute November 4, 1985
Revised to April 27, 2020, Effective July 1, 2020

SECTION 1.
SCOPE AND DEFINITIONS

1.1 SCOPE

The *Standard Specification for* K-*Series*, LH-*Series,* DLH-*Series Open Web Steel Joists and for Joist Girders*, hereafter referred to as the Specification, covers the design, manufacture, application, and erection stability and handling of Joist Girders and Open Web Steel Joists K-Series, LH-Series, and DLH-Series in buildings or other structures, where other structures are defined as those structures designed, manufactured, and erected in a manner similar to buildings. Joist Girders and K-Series, LH-Series, and DLH-Series joists shall be designed using Allowable Stress Design (ASD) or Load and Resistance Factor Design (LRFD) in accordance with this Specification. Included as part of this Specification are KCS joists, K-Series; Joist Substitutes, K-Series; and Top Chord Extensions and Extended Ends, K-Series.

1.2 OTHER REGULATIONS

Joist Girders and K-Series, LH-Series, and DLH-Series joists shall be erected in accordance with the Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection, Subpart R – Steel Erection. The erection of Joist Girders and K-Series, LH-Series, and DLH-Series joists 144 ft. (43.9 m) or less in length shall be in accordance with the requirements of Section 1926.757, Open Web Steel Joists. Joist Girders and DLH–Series joists greater than 144 ft. (43.9 m) in length shall be in accordance with the requirements of Section 1926.756 Beams and Columns.

1.3 APPLICATION

This Specification includes Section 1 through Section 6. The user notes shall not be part of the Specification.

User Note: User notes are intended to provide practical guidance in the use and application of this Specification.

1.4 DEFINITIONS

The following terms shall, for the purposes of this Specification, have the meanings shown in this Section. Where terms are not defined in this Section, those terms shall have their ordinary accepted meanings in the context in which it applies.

Joist Girders, K-Series, LH-Series, and DLH-Series shall be open web, in-plane load-carrying steel members utilizing hot-rolled or cold-formed steel, including cold-formed steel whose yield strength has been attained by cold working.

Joist Girders shall be open web steel trusses used as primary framing members designed as simple spans supporting in-plane concentrated loads for a floor or roof system. These concentrated loads shall be considered to act at the top chord panel points of the Joist Girders unless otherwise specified.

The Joist Girder standard designation in ASD shall be established by its nominal depth in inches (mm), the letter "G", followed by the number of joist spaces, the letter "N", the load in kips (kN) at each panel point, and the letter "K". The Joist Girder standard designation in LRFD shall be established by its nominal depth in inches (mm), the letter "G", followed by the number of joist spaces, the letter "N", the factored load in kips (kN) at each panel point, and the letter "F". Joist Girders shall be designed in accordance with this Specification to support the loads defined by the specifying professional.

Joist Girders shall be designed and manufactured as either simple framing members with underslung ends and bottom chord extensions or as part of an ordinary steel moment frame (OMF). Where used as part of an OMF the specifying professional shall be responsible for carrying out all the required frame analyses (i.e. first-order and second-order), provide all the required load information and stiffness data to the joist manufacturer, and indicate the type of **Joist Girder** to column connections that are being designed on the structural drawings.

User Note: Joist Girders have been standardized in depths from 20 inches (508 mm) through 120 inches (3048 mm), for spans from 20 feet (6096 mm) through 120 feet (36576 mm).

Where this Specification refers to "steel joists", this shall mean the K-Series, LH-Series, and DLH-Series joists.

User Note: Joists are suitable for the direct support of floors and roof slabs or decks. The K-Series joists are standardized in depths from 10 inches (254 mm) through 30 inches (762 mm), for spans up through 60 feet (18288 mm). The LH-Series joists are standardized in depths from 18 inches (457 mm) through 48 inches (1219 mm), for spans up through 96 feet (29261 mm). The DLH-Series joists are standardized in depths from 52 inches (1321 mm) through 120 inches (3048 mm), for spans up through 240 feet (73152 mm).

The K-Series, LH-Series and DLH-Series standard joist designations shall be established by their nominal depth, followed by the letters K, LH or DLH as appropriate, and then by the Section Number designation assigned. The Section Number designations shall range from 01 to 25. The K-Series, LH-Series and DLH-Series standard joist designations listed in the following Standard Load Tables shall support the uniformly distributed loads as provided in the applicable tables:

Standard LRFD Load Table Open Web Steel Joists, K-Series – U.S. Customary Units
Standard ASD Load Table Open Web Steel Joists, K-Series – U.S. Customary Units
Standard LRFD Load Table Longspan Steel Joists, LH-Series – U.S. Customary Units
Standard ASD Load Table Longspan Steel Joists, LH-Series – U.S. Customary Units
Standard LRFD Load Table Deep Longspan Steel Joists, DLH-Series – U.S. Customary Units
Standard ASD Load Table Deep Longspan Steel Joists, DLH-Series – U.S. Customary Units
Standard LRFD Load Table Open Web Steel Joists, K-Series – S.I. Units
Standard ASD Load Table Open Web Steel Joists, K-Series – S.I. Units
Standard LRFD Load Table Longspan Steel Joists, LH-Series – S.I. Units
Standard ASD Load Table Longspan Steel Joists, LH-Series – S.I. Units
Standard LRFD Load Table Deep Longspan Steel Joists, DLH-Series – S.I. Units
Standard ASD Load Table Deep Longspan Steel Joists, DLH-Series – S.I. Units

Wherever a standard SJI Section Number is specified in the joist designation (e.g. 18K4, 32LH10) and other design load cases are also specified for the joist, the steel joist shall be designed for the corresponding total load as shown in the Standard Load Tables as a minimum.

User Note: Six standard types of K-Series, LH-Series and DLH-Series joists are designed and manufactured. These types are underslung (top chord bearing) or square-ended (bottom chord bearing), with parallel chords or with single or double pitched top chords. The Standard Load Tables apply for a pitched top chord up to 1/2 inch per foot (1:24).

The steel joist or Joist Girder designation depth shall be the depth at mid-span.

An alternate method of specifying a standard K-Series, LH-Series, or DLH-Series joist shall be permitted by providing the designation in a "load/load" sequence. The format used shall be ddKtl/ll, ddLHtl/ll, or ddDLHtl/ll where:

dd is the nominal depth of the joist in inches (mm)
tl is the total uniformly distributed load applied to the joist top chord, plf (kN/m)
ll is the uniform live load for which the deflection shall be checked and limited as required by this Specification, plf (kN/m)

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User Note: The load/load K-Series, LH-Series, or DLH-Series joists can be specified in depths from 10 inches (254 mm) through 120 inches (3048 mm) and spans up through 240 feet (73152 mm). The maximum uniformly distributed load-carrying capacity of 2400 plf (35.03 kN/m) in ASD and 3600 plf (52.54 kN/m) in LRFD has been established for this alternate K-Series, LH-Series, or DLH-Series format. The maximum capacity for any given load/load joist designation is a function of span, depth and chord member size. When requirements exceed the standard K-Series load table limitations for loading, span, and depth, an LH-Series designation is recommended to facilitate the proper determination of minimum seat depth, end anchorage, bridging size, deck attachment, etc. Thus, any joist exceeding a 30 inch depth, a span of 60 feet, an in-kip moment of Depth x 61 kips in ASD or Depth x 91.5 kips in LRFD, or an end reaction of 9.2 kips in ASD or 13.8 kips in LRFD should be designated as an LH-Series which allows for a cross-reference with a standard LH designation as listed in this Specification for seat, end anchorage, bridging, attachment tables, etc.

A KCS Joist is a particular type of K-Series joist, and shall be designed in accordance with this Specification based on an envelope of moment and shear capacity, rather than uniform load capacity, to support uniform plus concentrated loads or other non-uniform loads. The KCS Joists shall be selected from standardized depths from 10 inches (254 mm) through 30 inches (762 mm), for spans up through 60 feet (18288 mm). The maximum total safe uniformly distributed load-carrying capacity of a KCS Joist, K-Series, shall be 550 plf (8.02 kN/m) in ASD or 825 plf (12.03 kN/m) in LRFD. A KCS Joist shall be parallel chord only and shall be permitted to be underslung or bottom chord bearing.

The KCS Joists, K-Series, standard designations shall be established by their nominal depth, followed by the letters “KCS”, and then by the Section Number designation assigned. The Section Number designations shall range from 1 to 5. A KCS Joist shall not be designated using the alternate “load/load” method. The KCS Joists, K-Series, standard designations listed in the following Standard Load Tables shall provide the moment capacity and shear capacity as listed in the applicable tables:

Standard LRFD Load Table for KCS Open Web Steel Joists – U.S. Customary Units
Standard ASD Load Table for KCS Open Web Steel Joists – U.S. Customary Units
Standard LRFD Load Table for KCS Open Web Steel Joists – S.I. Units
Standard ASD Load Table for KCS Open Web Steel Joists – S.I. Units

Where an open web configuration becomes impractical, a Joist Substitute, K-Series, shall be designed in accordance with this Specification to support uniform loads when the span is less than 10 feet (3048 mm). The maximum total safe uniformly distributed load-carrying capacity of a Joist Substitute shall be 550 plf (8.02 kN/m) in ASD or 825 plf (12.03 kN/m) in LRFD.

The Joist Substitutes, K-Series, standard designations shall be established by their nominal depth, e.g. 2.5, followed by the letter “K” and then by the chord size designation assigned. The chord size designations shall range from 1 to 3. The Joist Substitutes, K-Series, standard designations listed in the following Load Tables shall support the uniformly distributed loads as provided in the applicable tables:

User Note: The Joist Substitutes, K-Series, are standardized as 2.5 inch (64 mm) deep sections for spans up through 10’-0” (3048 mm).

LRFD Simple Span Load Table for 2.5 Inch K–Series Joist Substitutes – U.S. Customary Units
ASD Simple Span Load Table for 2.5 Inch K–Series Joist Substitutes – U.S. Customary Units
LRFD Simple Span Load Table for 64 mm K–Series Joist Substitutes – S.I. Units
ASD Simple Span Load Table for 64 mm K–Series Joist Substitutes – S.I. Units

LRFD Outriggers Load Table for 2.5 Inch K–Series Joist Substitutes – U.S. Customary Units
ASD Outriggers Load Table for 2.5 Inch K–Series Joist Substitutes – U.S. Customary Units
LRFD Outriggers Load Table for 64 mm K–Series Joist Substitutes – S.I. Units
ASD Outriggers Load Table for 64 mm K–Series Joist Substitutes – S.I. Units

A Top Chord Extension or Extended End, K-series, shall be a joist accessory that shall be designed in accordance with this Specification to support uniform loads when one or both ends of an underslung joist needs to be cantilevered beyond its bearing seat.

User Note: The Top Chord Extensions and Extended Ends are standardized as an “S” Type (top chord angles extended only) and an “R” Type (top chord and bearing seat angles extended), respectively.

Standard designations for the "S" Type shall range from S1 to S12 for spans from 0'-6" to 4'-6" (152 to 1372 mm). Standard designations for the "R" Type shall range from R1 to R12 for spans from 0'-6" to 6'-0" (152 to 1829 mm). The maximum total safe uniformly distributed load-carrying capacity of either an "R" or "S" Type extension shall be 550 plf (8.02 kN/m) in ASD or 825 plf (12.03 kN/m) in LRFD. The "S" Type Top Chord Extensions and "R" Type Extended Ends listed in the following Standard Load Tables shall support the uniformly distributed loads as provided in the applicable tables:

LRFD Top Chord Extension Load Table (S Type) – U.S. Customary Units
ASD Top Chord Extension Load Table (S Type) – U.S. Customary Units
LRFD Top Chord Extension Load Table (R Type) – U.S. Customary Units
ASD Top Chord Extension Load Table (R Type) – U.S. Customary Units
LRFD Top Chord Extension Load Table (S Type) – S.I. Units
ASD Top Chord Extension Load Table (S Type) – S.I. Units
LRFD Top Chord Extension Load Table (R Type) – S.I. Units
ASD Top Chord Extension Load Table (R Type) – S.I. Units

1.5 STRUCTURAL DESIGN DRAWINGS AND SPECIFICATIONS

The structural design drawings and specifications shall meet the requirements in the *Code of Standard Practice for Steel Joists and Joist Girders*, except for deviations specifically identified in the design drawings and/or specifications.

SECTION 2.
REFERENCED SPECIFICATIONS, CODES AND STANDARDS

2.1 REFERENCES

The standards listed below shall be considered as part of the requirements of this Specification. Where conflicts occur between this Specification and a referenced standard, the provisions of this Specification shall take precedence unless otherwise stated. This section lists the standards that are referenced in this Specification. The standards are listed in alphabetical order by name of standards developer organization, with the specific standard designations, title and dates of each of the referenced standards below.

American Institute of Steel Construction, Inc. (AISC), Chicago, IL

ANSI/AISC 360-10 *Specification for Structural Steel Buildings*

American Iron and Steel Institute (AISI), Washington, DC

ANSI/AISI S100-2012 *North American Specification for the Design of Cold-Formed Steel Structural Members*

American Society of Civil Engineers (ASCE), Reston, VA

SEI/ASCE 7-10 *Minimum Design Loads for Buildings and Other Structures*

American Society of Testing and Materials, ASTM International (ASTM), West Conshohocken, PA

ASTM A6/A6M-13A, *Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling*

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ASTM A36/A36M-12, *Standard Specification for Carbon Structural Steel*

ASTM A242/242M-13, *Standard Specification for High-Strength Low-Alloy Structural Steel*

ASTM A307-12a, *Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength*

ASTM A325/325M-13, *Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi [830 MPa] Minimum Tensile Strength*

ASTM A370-12a, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*

ASTM A500/A500M-13, *Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes*

ASTM A501-07 *Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing* ASTM

A529/A529M-05(2009), *Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality* ASTM

A572/A572M-13a, *Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel*

ASTM A588/A588M-10, *Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance*

ASTM A606/A606M-09a, *Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance*

ASTM A992/A992M-11, *Standard Specification for Structural Steel Shapes*

ASTM A1008/A1008M-13, *Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable*

ASTM A1011/A1011M-13, *Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength*

ASTM A1065/A1065M-09(2014) *Standard Specification for Cold-Formed Electric-Fusion (ARC) Welded High-Strength Low-Alloy Structural Tubing in Shapes with 50 ksi (345 MPA) Minimum Yield Point*

ASTM A1085-13 *Standard Specification for Cold-Formed Welded Carbon Steel Hollow Structural Sections (HSS)*

American Welding Society (AWS), Miami, FL

AWS A5.1/A5.1M-2012, *Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding*

AWS A5.5/A5.5M:2006, *Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding*

AWS A5.17/A5.17M-97:R2007, *Specification for Carbon Steel Electrodes and Fluxes for Submerged Arc Welding*

AWS A5.18/A5.18M:2005, *Specification for Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding*

AWS A5.20/A5.20M:2005, *Specification for Carbon Steel Electrodes for Flux Cored Arc Welding*

AWS A5.23/A5.23M:2011, *Specification for Low-Alloy Steel Electrodes and Fluxes for Submerged Arc Welding*

AWS A5.28/A5.28M:2005, *Specification for Low-Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding*

AWS A5.29/A5.29M:2010, *Specification for Low-Alloy Steel Electrodes for Flux Cored Arc Welding*

AWS D1.1/D1.1M:2015, *Structural Welding Code - Steel*

AWS D1.3/D1.3M:2008, *Structural Welding Code Sheet Steel*

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User Note: The following informative references provide practical guidance in the use and application of this Specification:

Code of Federal Regulations (CFR), Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R - Steel Erection; January 18, 2001, Washington, D.C.

Steel Joist Institute (SJI), Florence, SC

SJI-COSP-2015, *Code of Standard Practice for Steel Joists and Joist Girders*

Technical Digest No. 3 (2007), *Structural Design of Steel Joist Roofs to Resist Ponding Loads*

Technical Digest No. 5 (2015), *Vibration of Steel Joist-Concrete Slab Floors*

Technical Digest No. 6 (2012), *Structural Design of Steel Joist Roofs to Resist Uplift Loads*

Technical Digest No. 8 (2008), *Welding of Open Web Steel Joists and Joist Girders*

Technical Digest No. 9 (2008), *Handling and Erection of Steel Joists and Joist Girders*

Technical Digest No. 10 (2003), *Design of Fire Resistive Assemblies with Steel Joists*

Technical Digest No. 11 (2007), *Design of Lateral Load Resisting Frames Using Steel Joists and Joist Girders*

Technical Digest No. 12 (2007), *Evaluation and Modification of Open-Web Steel Joists and Joist Girders*

The Society for Protective Coatings (SSPC), *Steel Structures Painting Manual, Volume 2, Systems and Specifications*, Paint Specification No. 15, Steel Joist Shop Primer, May 1, 1999, Pittsburgh, PA.

Van Malssen, S.H. (1984), *The Effects of Arc Strikes on Steel Used in Nuclear Construction,* Welding Journal, American Welding Society, Miami, FL, July 1984.

SECTION 3.
MATERIALS

3.1 STEEL

The steel used in the manufacture of Joist Girders and K-Series, LH-Series, and DLH-Series joists shall conform to one of the following ASTM specifications:

ASTM A36/A36M, Carbon Structural Steel

ASTM A242/A242M, High-Strength Low-Alloy Structural Steel

ASTM A500/A500M, Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A529/A529M, High-Strength Carbon-Manganese Steel of Structural Quality

ASTM A572/A572M, High-Strength Low-Alloy Columbium-Vanadium Structural Steel

ASTM A588/A588M, High-Strength Low-Alloy Structural Steel up to 50 ksi [345 MPa] Minimum Yield Point with Atmospheric Corrosion Resistance

ASTM A606/A606M, Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance

ASTM A992/A992M, Structural Steel Shapes

ASTM A1008/A1008M, Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

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ASTM A1011/A1011M, Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

ASTM A1018/A1018M, Steel, Sheet and Strip, Heavy Thickness Coils, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy, Columbium or Vanadium, and High-Strength Low-Alloy with Improved Formability and Ultra-High Strength

EXCEPTION: Steel used in the manufacture of Joist Girders and K-Series, LH-Series, and DLH-Series joists shall be permitted to be of suitable quality ordered or produced to other than the listed ASTM specifications, provided that such material in the state used for final assembly and manufacture is weldable and is proven by tests performed by the producer or manufacturer to have properties, in accordance with Section 3.2.

3.2 MECHANICAL PROPERTIES

3.2.1 Minimum Yield Strength: Steel used for Joist Girders and K-Series, LH-Series, and DLH-Series joists shall have a minimum yield strength determined in accordance with one of the procedures specified in this section, which is equal to the yield strength assumed in the design.

User note: The term "Yield Strength" as used herein designates the yield level of a material as determined by the applicable method outlined in paragraph 13.1 “Yield Point”, and in paragraph 13.2 “Yield Strength”, of ASTM A370, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*, or as specified in Section 3.2.3.

Evidence that the steel furnished meets or exceeds the design yield strength shall, if requested, be provided in the form of an affidavit or by witnessed or certified test reports.

For material used without consideration of increase in yield strength resulting from cold forming, the specimens shall be taken from as-rolled material. In the case of such material, the mechanical properties of which conform to the requirements of one of the listed ASTM specifications in Section 3.1, the test specimens and procedures shall conform to those of the applicable ASTM specification and to ASTM A370.

3.2.2 Other Materials: For materials where the mechanical properties do not conform to the requirements of one of the ASTM specifications listed in Section 3.1, these materials shall conform to the following requirements:

a) The specimens shall comply with ASTM A370,
b) The specimens shall exhibit a yield strength equal to or exceeding the design yield strength,
c) The specimens shall have an elongation of not less than 20 percent in 2 inches (51 mm) for sheet strip, or 18 percent in 8 inches (203 mm) for plates, shapes and bars with adjustments for thickness for plates, shapes and bars as prescribed in either ASTM A36/A36M, A242/A242M, A500/A500M, A529/A529M, A572/A572M, A588/A588M, or A992/A992M, whichever ASTM specification is applicable, on the basis of design yield strength.
d) The number of tests for a), b), and c) above shall be as prescribed in ASTM A6/A6M for plates, shapes, and bars; and ASTM A606/A606M, A1008/A1008M and A1011/A1011M for sheet and strip.

3.2.3 As-Formed Strength: If as-formed strength is utilized, the test reports shall show the results of tests performed on full section specimens in accordance with the provisions of the AISI S100. The reports shall also indicate compliance with the following additional requirements:

a) The yield strength calculated from the test data shall equal or exceed the design yield strength.
b) Where tension tests are made for acceptance and control purposes, the tensile strength shall be at least 8 percent greater than the yield strength of the section.
c) Where compression tests are used for acceptance and control purposes, the specimen shall withstand a gross shortening of 2 percent of its original length without cracking. The length of the specimen shall be not greater than 20 times the least radius of gyration.
d) If any test specimen fails to pass the requirements of the subparagraphs (a), (b), or (c) above, as applicable, two retests shall be made of specimens from the same lot. Failure of one of the retest specimens to meet such requirements shall be the cause for rejection of the lot represented by the specimens.

3.3 WELDING ELECTRODES

3.3.1 Welding Electrodes: The welding electrodes used for arc welding shall be in accordance with the following:

a) For connected members both having a specified minimum yield strength greater than 36 ksi (250 MPa), one of the following electrodes shall be used:

AWS A5.1: E70XX
AWS A5.5: E70XX-X
AWS A5.17: F7XX–EXXX, F7XX–ECXXX flux electrode combination
AWS A5.18: ER70S-X, E70C-XC, E70C-XM
AWS A5.20: E7XT-X, E7XT-XM
AWS A5.23: F7XX–EXXX-XX, F7XX–ECXXX-XX
AWS A5.28: ER70S-XXX, E70C-XXX
AWS A5.29: E7XTX-X, E7XTX-XM

b) For connected members both having a specified minimum yield strength of 36 ksi (250 MPa) or one having a specified minimum yield strength of 36 ksi (250 MPa), and the other having a specified minimum yield strength greater than 36 ksi (250 MPa), one of the following electrodes shall be used:

AWS A5.1: E60XX
AWS A5.17: F6XX-EXXX, F6XX-ECXXX flux electrode combination
AWS A5.20: E6XT-X, E6XT-XM
AWS A5.29: E6XTX-X, E6XTX-XM
or any of those listed in Section 3.3.1(a).

3.3.2 Other Welding Methods: Other welding methods, providing equivalent strength as demonstrated by tests, shall be permitted to be used.

3.4 PAINT

The standard shop paint shall be considered an impermanent and provisional coating.

User Note: The standard shop paint is intended to protect the steel for only a short period of exposure in ordinary atmospheric conditions.

When specified, the standard shop paint shall conform to one of the following:

a) The Society for Protective Coatings, SSPC Paint Specification No. 15.

b) Or, shall be a shop paint which meets the minimum performance requirements of SSPC Paint Specification No. 15.

SECTION 4.
DESIGN AND MANUFACTURE

4.1 METHOD

Joist Girders support steel joists or other secondary members and shall be designed in accordance with this Specification as simply-supported primary load-carrying members for in-plane loading. Steel joists shall be designed in accordance with this Specification as simply-supported trusses supporting a floor or roof deck so constructed as to brace the top chord of the steel joists against lateral buckling. Where any applicable design feature is not specifically covered herein, the design shall be in accordance with the following Specifications:

a) Where the steel used consists of hot-rolled shapes, bars or plates, AISC 360.

b) For members which are cold-formed from sheet or strip steel, AISI S100.

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4.1.1 Design Basis:

Steel joist and Joist Girder designs shall be in accordance with the provisions in this Specification using Load and Resistance Factor Design (LRFD) or Allowable Strength Design (ASD) as specified by the specifying professional for the project.

4.1.2 Loads, Forces and Load Combinations:

The loads and forces used for the steel joist and Joist Girder design shall be calculated by the specifying professional in accordance with the applicable building code and specified and provided on the structural drawings.

For nominal concentrated loads, which have been accounted for in the specified uniform loads, the addition of chord bending moments or an added shop or field web member due to these nominal concentrated loads shall not be required provided that the sum of the concentrated loads within a chord panel does not exceed 100 pounds and the attachments are concentric to the chord. When exact dimensional locations for concentrated loads which do not meet the above criteria are provided by the specifying professional, the joist shall be designed for the loads and load locations provided without the need for additional field applied web members at the specified locations.

The load combinations shall be specified by the specifying professional on the structural drawings in accordance with the applicable building code. In the absence of an applicable building code, the load combinations shall be those stipulated in SEI/ASCE 7 Section 2.3 and Section 2.4 as appropriate. For LRFD designs, the load combinations in SEI/ASCE 7, Section 2.3 shall apply. For ASD designs, the load combinations in SEI/ASCE 7, Section 2.4 shall apply.

4.2 DESIGN AND ALLOWABLE STRESSES

4.2.1 Design Using Load and Resistance Factor Design (LRFD)

Joists and Joist Girders shall have their components so proportioned that the required stresses, f_u, shall not exceed ϕF_n where

f_u	= required stress	ksi (MPa)
F_n	= nominal stress	ksi (MPa)
ϕ	= resistance factor	
ϕF_n	= design stress	ksi (MPa)

4.2.2 Design Using Allowable Strength Design (ASD)

Joists and Joist Girders shall have their components so proportioned that the required stresses, f, shall not exceed F_n / Ω where

f	= required stress	ksi (MPa)
F_n	= nominal stress	ksi (MPa)
Ω	= safety factor	
F_n/Ω	= allowable stress	ksi (MPa)

4.2.3 Stresses:

The calculation of design stress or allowable stress for chords shall be based on a yield strength, F_y, of the material used in manufacturing equal to 50 ksi (345 MPa). The calculation of design stress or allowable stress for all other joist elements shall be based on a yield strength, F_y, of the material used in manufacturing, but shall not be less than 36 ksi (250 MPa) nor greater than 50 ksi (345 MPa).Yield strengths greater than 50 ksi shall not be used for the design of any members.

4.2.3.1 Tension: $\phi_t = 0.90$ (LRFD), $\Omega_t = 1.67$ (ASD)

Design Stress = $0.9F_y$ (LRFD) (4.2-1)

Allowable Stress = $0.6F_y$ (ASD) (4.2-2)

4.2.3.2 Compression: $\phi_c = 0.90$ (LRFD), $\Omega_c = 1.67$ (ASD)

Design Stress = $0.9F_{cr}$ (LRFD) (4.2-3)

Allowable Stress = $0.6F_{cr}$ (ASD) (4.2-4)

Where:

For members with $\frac{k\ell}{r} \le 4.71\sqrt{\frac{E}{QF_y}}$

$$F_{cr} = Q\left[0.658^{\left(QF_y/F_e\right)}\right]F_y \quad (4.2\text{-}5)$$

For members with $\frac{k\ell}{r} > 4.71\sqrt{\frac{E}{QF_y}}$

$$F_{cr} = 0.877F_e \quad (4.2\text{-}6)$$

Where F_e = Elastic buckling stress determined in accordance with Equation 4.2-7

$$F_e = \frac{\pi^2 E}{\left(k\ell/r\right)^2} \quad (4.2\text{-}7)$$

In the above equations, ℓ is the length, k is the effective length factor, and r is the corresponding radius of gyration of the member as defined in Section 4.3. E is equal to 29,000 ksi (200,000 MPa).

For hot-rolled sections and cold-formed angles, Q shall be taken as the full reduction factor for slender compression members as determined in accordance with AISC 360-10.

Exception: Where a compression web member is a crimped-end angle member intersecting at the first bottom chord panel point, whether hot-rolled or cold-formed, then Q shall be determined as follows:

$$Q = [5.25/(w/t)] + t \le 1.0 \quad (4.2\text{-}8a)$$

Where: w = angle leg length, inches
t = angle leg thickness, inches

or,

$$Q = [5.25/(w/t)] + (t/25.4) \le 1.0 \quad (4.2\text{-}8b)$$

Where: w = angle leg length, millimeters
t = angle leg thickness, millimeters

For all other cold-formed sections the method of calculating the nominal compression strength shall be in accordance with AISI S100.

4.2.3.3 Bending: $\phi_b = 0.90$ (LRFD), $\Omega_b = 1.67$ (ASD)

Bending calculations shall be based on the elastic section modulus.

For chords and web members other than solid rounds: $F_n = F_y$

Design Stress = $\phi_b F_n = 0.9F_y$ (LRFD) (4.2-9)

Allowable Stress = $F_n/\Omega_b = 0.6F_y$ (ASD) (4.2-10)

For web members of solid round cross section: $F_n = 1.6\ F_y$

Design Stress = $\phi_b F_n = 1.45F_y$ (LRFD) (4.2-11)

Allowable Stress = $F_n/\Omega_b = 0.95F_y$ (ASD) (4.2-12)

For bearing plates used in joist seats: $F_n = 1.5\ F_y$

Design Stress = $\phi_b F_n = 1.35F_y$ (LRFD) (4.2-13)

Allowable Stress = $F_n/\Omega_b = 0.90F_y$ (ASD) (4.2-14)

4.2.3.4 Weld Strength:

Shear at throat of fillet welds, flare bevel groove welds, partial joint penetration groove welds, and plug/slot welds shall be determined as follows:

Nominal Shear Stress = $F_{nw} = 0.6F_{exx}$ (4.2-15)

LRFD: $\phi_w = 0.75$

Design Shear Strength = $\phi R_n = \phi_w F_{nw} A = 0.45F_{exx} A_w$ (4.2-16)

ASD: $\Omega_w = 2.0$

Allowable Shear Strength = $R_n/\Omega_w = F_{nw}A/\Omega_w = 0.3F_{exx} A_w$ (4.2-17)

Where:

F_{exx} is determined as follows:

E70 series electrodes or F7XX-EXXX flux-electrode combinations F_{exx} = 70 ksi (483 MPa)

E60 series electrodes or F6XX-EXXX flux-electrode combinations F_{exx} = 60 ksi (414 MPa)

A_w = effective throat area, where:

For fillet welds, A_w = effective throat area

Other design methods demonstrated to provide sufficient strength by testing shall be permitted to be used.

For flare bevel groove welds, the effective weld area is based on a weld throat width, T, where:

T (inches) = 0.12D + 0.11 (4.2-18a)

Where D = web diameter, inches

or,

T (mm) = 0.12D + 2.8 (4.2-18b)

Where D = web diameter, mm

For plug/slot welds, A_w = cross-sectional area of the hole or slot in the plane of the faying surface provided that the hole or slot meets the requirements of AISC 360.

User Note: For more on plugs/slot welds see Steel Joist Institute Technical Digest No. 8, "Welding of Open-Web Steel Joists and Joist Girders".

Strength of resistance welds and complete-joint-penetration groove or butt welds in tension or compression (only where the stress is normal to the weld axis) shall be equal to the base metal strength:

$\phi_t = \phi_c = 0.90$ (LRFD) $\quad \Omega_t = \Omega_c = 1.67$ (ASD)

Design Stress = $0.9 F_y$ (LRFD) (4.2-19)

Allowable Stress = $0.6 F_y$ (ASD) (4.2-20)

4.3 MAXIMUM SLENDERNESS RATIOS

The slenderness ratios, $1.0\ell/r$ and $1.0\ell_s/r$ of members as a whole or any component part shall not exceed the values given in Table 4.3-1, Part A.

4.3.1 Effective Slenderness Ratios: The effective slenderness ratio, $k\ell/r$ to be used in calculating the nominal stresses, F_{cr} and F'_e, is the largest value as determined from Table 4.3-1, Part B and Part C, and modified where required with equation 4.3-1. The effective length k shall be taken as 1.0 for all components in Joist Girders.

4.3.2 Compressive Members: In compression members where fillers or ties are used, they shall be spaced so that the ℓ_s/r_z ratio of each component does not exceed the governing ℓ/r ratio of the member as a whole. The terms used in Table 4.3-1 shall be defined as follows:

ℓ = length center-to-center of panel points, except ℓ = 36 inches (914 millimeters) for calculating ℓ/r_y of the top chord member for joists, and for Joist Girders this distance shall be the unbraced length between joists which are positively attached to the top chord, in. (mm).

ℓ_s = maximum length center-to-center between panel point and filler (tie), or between adjacent fillers (ties), in. (mm).

r_x = member radius of gyration about the horizontal axis of the joist or Joist Girder cross section, in. (mm).

r_y = member radius of gyration about the vertical axis of the joist or Joist Girder cross section, in. (mm).

r_z = least radius of gyration of a member component, in. (mm).

Compression web members shall be those web members subject to compressive axial loads under gravity loading.

4.3.3 Tension Members: Tension web members shall be those web members subject to tension axial loads under gravity loading, and which shall be permitted to be subject to compressive axial loads under alternate loading conditions

User Note: An example of a non-gravity alternate loading condition is net uplift.

4.3.4 Top Chords: For top chords, the end panel(s) shall be the panels between the bearing seat and the first primary interior panel point comprised of at least two intersecting web members.

4.3.5 Built-Up Web Members: For built-up web members composed of two interconnected shapes, where $\ell_s/r_z > 40$,

a modified slenderness ratio $\left(\frac{k\ell}{r_y}\right)_m$ shall replace $\frac{k\ell}{r_y}$ in equations 4.2-5, 4.2-6, and 4.2-7, where:

$$\left(\frac{k\ell}{r_y}\right)_m = \sqrt{\left(\frac{k\ell}{r_y}\right)^2 + \left(\frac{k_i \ell_s}{r_z}\right)^2} \qquad (4.3\text{-}1)$$

and,

k_i = 0.50 for angles back-to-back
= 0.75 for channels back-to-back

TABLE 4.3-1
MAXIMUM AND EFFECTIVE SLENDERNESS RATIOS[1]

Description			$k\ell/r_x$	$k\ell/r_y$	$k\ell/r_z$	$k\ell_s/r_z$
I.	TOP CHORD INTERIOR PANELS					
	A.	The slenderness ratios, $1.0\ell/r$ and $1.0\ell_s/r$, of members as a whole or any component part shall not exceed 90.				
	B.	The effective slenderness ratio for joists, $k\ell/r$, to determine F_{cr} where k is:				
		1. Two shapes with fillers or ties	0.75	0.94	---	1.0
		2. Two shapes without fillers or ties	---	---	0.75	---
		3. Single component members	0.75	0.94	---	---
	C.	For bending, the effective slenderness ratio, $k\ell/r$, to determine F'_e where k is:	0.75	---	---	---
II.	TOP CHORD END PANELS					
	A.	The slenderness ratios, $1.0\ell/r$ and $1.0\ell_s/r$, of members as a whole or any component part shall not exceed 120.				
	B.	The effective slenderness ratio for joists, $k\ell/r$, to determine F_{cr} where k is:				
		1. Two shapes with fillers or ties	1.0	0.94	---	1.0
		2. Two shapes without fillers or ties	---	---	1.0	---
		3. Single component members	1.0	0.94	---	---
	C.	For bending, the effective slenderness ratio, $k\ell/r$, to determine F'_e where k is:	1.0	---	---	---
III.	ALL BOTTOM CHORD PANELS					
	A.	The slenderness ratios, $1.0\ell/r$ and $1.0\ell_s/r$, of members as a whole or any component part shall not exceed 240.				
	B.	For members subject to compression, the effective slenderness ratio for joists, $k\ell/r$, to determine F_{cr} where k is:				
		1. Two shapes with fillers or ties	0.9	0.94	---	1.0
		2. Two shapes without fillers or ties	---	---	0.9	---
		3. Single component members	0.9	0.94	---	---
	C.	For bending, the effective slenderness ratio, $k\ell/r$, to determine F'_e where k is:	0.9	---	---	---
IV.	WEB MEMBERS					
	A.	The slenderness ratios, $1.0\ell/r$ and $1.0\ell_s/r$, of members as a whole or any component part shall not exceed 240 for a tension member or 200 for a compression member.				
	B.	For members subject to compression, the effective slenderness ratio for joists, $k\ell/r$, to determine F_{cr} where k is:				
		1. Two shapes with fillers or ties	0.75	1.0	---	1.0
		2. Two shapes without fillers or ties	---	---	1.0	---
		3. Single component members	0.75	0.9*	---	---
		*For end tension web members subject to compression, k shall equal 0.8				

(1) The effective length k shall equal 1.0 for all components of Joist Girders.

4.4 MEMBERS

4.4.1 Chords

The joist and Joist Girder bottom chord shall be designed as an axially loaded tension member.

For Joist Girders, the radius of gyration of the bottom chord about its vertical axis shall not be less than ℓ/240 where ℓ is the distance between lines of bracing. The radius of gyration of a Joist Girder top chord about the vertical axis shall not be less than Span/575.

For steel joists, the radius of gyration of the top chord about its vertical axis shall not be less than the results of equation 4.4-1 or 4.4-2:

$$r_y \geq \ell_{br} \Big/ \left(124+0.67\, d_j+28 \frac{d_j}{L} \right), \text{ in.} \qquad (4.4\text{-}1a)$$

$$r_y \geq \ell_{br} \Big/ \left(124+0.026\, d_j+0.34 \frac{d_j}{L} \right), \text{ mm} \qquad (4.4\text{-}1b)$$

or,

$$r_y \geq \ell_{br} / 170 \qquad (4.4\text{-}2)$$

Where:

d_j is the steel joist depth, in. (mm)

L is the joist span length, ft. (m)

r_y is the radius of gyration of the top chord about the vertical axis of the joist cross section, in. (mm)

ℓ_{br} is the spacing in inches (millimeters) between lines of bridging as specified in Section 5.5.3.1.

A steel joist top chord shall be considered as laterally braced by the floor slab or roof deck provided the requirements of Section 5.9 are met.

A Joist Girder top chord shall be considered as laterally braced by the steel joists provided positive attachment is made. The outstanding part of the top chord member shall be designed such that the allowable reaction from a single joist shall not exceed equation 4.4-3 or 4.4-4:

$$\phi P_p \text{ and } \phi P_p\,(1.6 - f_{au}/\phi Q F_y) \quad \text{(LRFD, } \phi = 0.9) \qquad (4.4\text{-}3)$$

$$P_p/\Omega \text{ and } P_p/\Omega\,(1.6 - \Omega f_a/Q F_y) \quad \text{(ASD, } \Omega = 1.67) \qquad (4.4\text{-}4)$$

Where:

F_y = Specified minimum yield strength, ksi (MPa)

P_p = Plastic failure mode = $[(t^2 F_y)/[2(b\text{-}k)]][g+5.66(b\text{-}k)]$, kips (N)

Q = Form factor defined in Section 4.2.3.2

b = width of the outstanding part of the top chord member, in. (mm)

f_{au} = P_u/A = Required compressive stress, ksi (MPa)

f_a = P/A = Required compressive stress, ksi (MPa)

g = width of bearing seat, in. (mm)

k = value from angle properties or similar dimension for other members, in (mm)

t = thickness of the outstanding part of the top chord member, in. (mm)

The top chord of a steel joist or Joist Girder shall be designed as a continuous member subject to combined axial and bending stresses, except a Joist Girder loaded only at panel points shall be designed as an axial loaded compression member. For combined stresses the top chord shall be so proportioned that:

For **LRFD**:

at the panel point:

$$f_{au} + f_{bu} \le 0.9F_y \qquad (4.4\text{-}5)$$

at the mid panel:

for, $\dfrac{f_{au}}{\phi_c F_{cr}} \ge 0.2$,

$$\frac{f_{au}}{\phi_c F_{cr}} + \frac{8}{9}\left[\frac{C_m f_{bu}}{\left[1-\left(\dfrac{f_{au}}{\phi_c F'_e}\right)\right] Q \phi_b F_y}\right] \le 1.0 \qquad (4.4\text{-}6)$$

for, $\dfrac{f_{au}}{\phi_c F_{cr}} < 0.2$,

$$\frac{f_{au}}{2\phi_c F_{cr}} + \left[\frac{C_m f_{bu}}{\left[1-\left(\dfrac{f_{au}}{\phi_c F'_e}\right)\right] Q \phi_b F_y}\right] \le 1.0 \qquad (4.4\text{-}7)$$

f_{au} = P_u/A = Required compressive stress using LRFD load combinations, ksi (MPa)

P_u = Required axial strength using LRFD load combinations, kips (N)

A = Area of the top chord, in.^{2} (mm^2)

f_{bu} = M_u/S = Required bending stress at the location under consideration using LRFD load combinations, ksi (MPa)

M_u = Required flexural strength using LRFD load combinations, kip-in. (N-mm)

S = Elastic Section Modulus, in.^{3} (mm^3)

F_{cr} = Nominal axial compressive stress in ksi (MPa) based on $k\ell/r$ as defined in Section 4.3

C_m = 1 - 0.3 $f_{au}/\phi_c F'_e$ for end panels

C_m = 1 - 0.4 $f_{au}/\phi_c F'_e$ for interior panels

Q = Form factor defined in Section 4.2.3.2

ϕ_c = Resistance factor for compression = 0.9

ϕ_b = Resistance factor for flexure = 0.9

F_y = Specified minimum yield strength, ksi (MPa)

$F'_e = \dfrac{\pi^2 E}{(k\ell/r_x)^2}$, ksi (MPa),

where ℓ is the length, k is the effective length factor, and r_x is the corresponding radius of gyration of the member as defined in Section 4.3

E = Modulus of elasticity, 29,000 ksi (200,000 MPa)

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For **ASD**:

at the panel point:

$$f_a + f_b \le 0.6F_y \qquad (4.4\text{-}8)$$

at the mid panel:

for, $\frac{f_a}{F_a} \ge 0.2$,

$$\frac{f_a}{F_a} + \frac{8}{9}\left[\frac{C_m f_b}{\left[1-\left(\frac{1.67f_a}{F'_e}\right)\right]QF_b}\right] \le 1.0 \qquad (4.4\text{-}9)$$

for $\frac{f_a}{F_a} < 0.2$,

$$\left(\frac{f_a}{2F_a}\right) + \left[\frac{C_m f_b}{\left[1-\left(\frac{1.67f_a}{F'_e}\right)\right]QF_b}\right] \le 1.0 \qquad (4.4\text{-}10)$$

f_a = P/A required compressive stress using ASD load combinations, ksi (MPa)

A = Area of the top chord, in.^{2} (mm^2)

P = Required axial strength using ASD load combinations, kips (N)

f_b = M/S = required bending stress at the location under consideration using ASD load combinations, ksi (MPa)

S = Elastic Section Modulus, in.^{3} (mm^3)

M = Required flexural strength using ASD load combinations, k-in. (N-mm)

F_a = Allowable axial compressive stress based on $k\ell/r$ as defined in Section 4.3; $0.6F_{cr}$, ksi (MPa)

F_b = Allowable bending stress; $0.6F_y$, ksi (MPa)

C_m = 1 - 0.50 f_a/F'_e for end panels

C_m = 1 - 0.67 f_a/F'_e for interior panels

Q = Form factor defined in Section 4.2.3.2

$F'_e = \frac{\pi^2 E}{(k\ell/r_x)^2}$, ksi (MPa),

where ℓ is the length, *k* is the effective length factor, and r_x is the corresponding radius of gyration of the member as defined in Section 4.3

E = Modulus of elasticity, 29,000 ksi (200,000 MPa)

The top chord and bottom chord shall be designed such that at each joint complies with equation 4.4-11 or 4.4-12:

$$f_{vmod} \le \phi_v F_n \qquad \text{(LRFD, } \phi_v = 1.00\text{)} \qquad (4.4\text{-}11)$$

$$f_{vmod} \le F_n/\Omega_v \qquad \text{(ASD, } \Omega_v = 1.50\text{)} \qquad (4.4\text{-}12)$$

F_n = nominal shear stress = $0.6F_y$, ksi (MPa)

f_t = axial stress = P/A, ksi (MPa)

f_v = shear stress = V/bt, ksi (MPa)

f_{vmod} = modified shear stress = $\left(\frac{1}{2}\right)\sqrt{f_t^2+4f_v^2}$

b = length of vertical part(s) of cross section, in. (mm)

t = thickness of vertical part(s) of cross section, in. (mm)

It shall not be necessary to design the top chord and bottom chord for the modified shear stress, f_{vmod}, where a round bar web member is continuous through a joint. The minimum required shear of section 4.4.2 (25 percent of the maximum end reaction) shall not be required when evaluating Equation 4.4-11 or 4.4-12.

KCS Joist, K-Series, chords shall be designed for a flat positive bending moment envelope where the moment capacity is constant at all interior panels. The top chord end panel(s) shall be designed for an axial load based on the force in the first tension web resulting from the specified shear. A uniform load of 550 plf (8.02 kN/m) in ASD or 825 plf (12.03 kN/m) in LRFD shall be used to check bending in the end panel(s). The top chord interior panels shall be designed for an axial stress resulting from the constant moment capacity plus the bending stress. The bending stress shall be determined from the smaller uniform load derived from the constant moment and constant shear, not to exceed 550 plf (ASD) or 825 plf (LRFD). The constant moment and shear shall be those values as listed in the Standard Load Table for KCS Steel Joists.

4.4.2 Web

The vertical shears to be used in the design of the web members shall be determined by including all loads, but such vertical shears shall be not less than 25 percent of the maximum end reaction from the design load combinations.

4.4.2.1 Redundant Web Members: Redundant web members used in modified Warren type web systems shall be designed to resist the gravity loads supported by the member plus an additional axial load of ½ of 1.0 percent of the top chord axial force. For a **Joist Girder**, this total axial load shall not be less than 2 percent of the top chord axial force.

4.4.2.2 Joist Girders: For Joist Girders, the tension web members shall be designed to resist at least 25 percent of their axial force in compression.

4.4.2.3 KCS Joist Web Forces: KCS Joist web forces shall be determined based on a flat shear envelope, and the following:

a) All webs shall be designed for a vertical shear equal to the specified shear capacity.
b) All webs shall be designed for 100 percent stress reversal except for the first tension web which remains in tension under all simple span gravity loads.

4.4.2.4 Single Component Web Member: In those cases where a single component web member is attached to the outside of the stem of a tee or double angle chord or any other orientation of a single web member which creates an out-of-plane moment, the web member design shall account for the stresses due to eccentricity.

4.4.2.4.1 Uncrimped Single Angle Web Members

For 1 inch uncrimped single angle web members where one leg is placed flat against one chord member in the gap, the resulting eccentricities and the effects in loading shall be considered in the design. A minimum of 50 percent of the required weld shall be deposited to each chord angle.

For angles subjected to tensile loading, the following requirements shall be met:

For **LRFD**: combined axial and bending stresses shall be proportioned in accordance with Eq. 4.4-5.

For **ASD**: combined axial and bending stresses shall be proportioned in accordance with Eq. 4.4-8.

For angles subjected to compression loading, the following requirements shall be met:

For **LRFD**:

at the panel point, combined axial and bending stresses shall be proportioned in accordance with Eq. 4.4-5.

at the mid length, the strength shall meet Eqs. 4.4-6 or 4.4-7, and 4.4-13:

$$\frac{f_{au}}{\phi_c F_{crz}} \le 1.0 \qquad (4.4\text{-}13)$$

where

f_{au} = P_u/A = Required tensile or compressive stress, ksi (MPa)

P_u = Required axial strength using LRFD load combinations, kips (N)

A = Area of the uncrimped angle web, in.^{2}, (mm^2)

f_{bu} = M_u/S = required bending stress, ksi (MPa)

M_u = Required flexural strength = $0.5 P_u \left(\frac{\text{chord gap}}{2} - \bar{y} \right)$, kip-in. (N-mm)

S = Minimum Elastic Section Modulus, in.^{3} (mm^3)

F_{cr} = F_{crx}, ksi (MPa)

F_{crx} = Nominal axial compressive stress in ksi (MPa) based on $k\ell/r_x$, where ℓ is the length, k is the effective length factor, and r_x is the corresponding radius of gyration of the member as defined in Section 4.3

F_{crz} = Nominal axial compressive stress in ksi (MPa) based on $k\ell/r_z$ where k = 1.0

C_m = 1.0

F_y = Specified minimum yield strength, ksi (MPa)

$F'_e = \frac{\pi^2 E}{\left(k\ell/r_x\right)^2}$, ksi (MPa)

Q = Form factor defined in Section 4.2.3.2

For **ASD**:

at the panel point, combined axial and bending stresses shall be proportioned in accordance with Eq. 4.4-8.

at the mid length the strength shall meet Eqs. 4.4-9 or 4.4-10, and 4.4-14:

$$\frac{f_a}{F_{az}} \le 1.0 \qquad (4.4\text{-}14)$$

where

f_a = P/A = Required tensile or compressive stress, ksi (MPa)

P = Required axial strength using ASD load combinations, kips (N)

A = Area of the uncrimped angle web, in.^{2}, (mm^2)

f_b = M/S = required bending stress, ksi (MPa)

S = Minimum Elastic Section Modulus, in.^{3} (mm^3)

M = Required flexural strength = $0.5P\left(\frac{\text{chord gap}}{2} - \bar{y}\right)$, kip-in. (N-mm)

F_a = F_{ax}, ksi (MPa)

F_{ax} = Nominal axial compressive stress in ksi (MPa) based on $k\ell/r_x$, where ℓ is the length, k is the effective length factor, and r_x is the corresponding radius of gyration of the member as defined in Section 4.3

F_{az} = Nominal axial compressive stress in ksi (MPa) based on $K\ell/r_z$, where k = 1.0

F_b = Allowable bending stress; $0.6F_y$, ksi (MPa)

Alternate methods of design shall be permitted provided they provide strength equal to or greater than those given. Alternate design procedures shall be submitted to the Steel Joist Institute's consulting engineer for approval.

4.4.3 Fillers and Ties

Fillers or ties added on chord or web compression members shall be designed and connected for a force equal to 2 percent of the required member axial force.

4.4.4 Joist and Joist Girder Extensions

Joist and Joist Girder extensions shall be designated as one of three extension types, as follows: top chord extensions (TCX), extended ends, or full depth cantilevers.

Design criteria for joist extensions shall be specified using one of the following methods:

a) A joist top chord extension (TCX), extended end, or full depth cantilevered end shall be designed for the load from the Standard Load Tables based on the design length and designation of the specified joist. In the absence of other design information, the joist manufacturer shall design the joist extension for this loading as a default.

b) A loading diagram shall be provided for the joist extension, extended end, or full depth cantilevered end. The diagram shall include the magnitude and location of the loads to be supported, as well as the applicable load combinations.

c) 2½" deep steel joist extensions shall be permitted to be specified using extension designations found in the Top Chord Extension Load Table (S Type) for TCXs or the Top Chord Extension Load Table (R Type) for extended ends.

Any deflection requirements or limits due to the accompanying loads and load combinations on the steel joist or Joist Girder extension shall be provided by the specifying professional, regardless of the method used to specify the extension. Unless otherwise specified, the joist manufacturer shall check the extension for the specified deflection limit under uniform live load acting simultaneously on both the joist base span and the extension.

The joist manufacturer shall consider the effects of steel joist or Joist Girder extension loading on the base span of the steel joist or Joist Girder. This shall include carrying the design bending moment due to the loading on the extension into the top chord end panel(s), and the effect on the overall steel joist or Joist Girder chord and web axial forces. In the case of a K-Series Standard Type 'R' Extended End or 'S' TCX, the design bending moment shall be determined by the tabulated extension section modulus (S) multiplied by the appropriate allowable (ASD) or design (LRFD) flexural stress.

Bracing of extensions shall be clearly indicated on the structural drawings.

4.5 CONNECTIONS

4.5.1 Methods

Member connections and splices shall be made by attaching the members to one another by arc or resistance welding or other accredited methods in accordance with the following:

a) Steel joist and Joist Girder arc welded joints shall be in accordance with the American Welding Society, "Structural Welding Code-Steel", D1.1, and/or the "Structural Welding Code Sheet Steel", D1.3 with the following seven modified acceptance criteria as permitted by AWS D1.1 Clause 6.8:

1) Undercut shall not exceed 1/16 inch (2 mm) for welds oriented parallel to the principal stress.

User Note: The typical diagonal web member connection to one leg of a chord angle is considered to be parallel to the principal stress.

2) Discontinuities outside of the weld design length shall be permitted provided no cracks exist and undercut does not exceed the limits of item 1).

User Note: The weld design length is the minimum weld length needed for the connection force and weld thickness. Portions of the actual weld length with imperfections or discontinuities such as porosity or lack of a full profile are not included when comparing the actual weld length to the weld design length.

3) One unrepaired arc strike shall be permitted per joint provided it does not result in other unacceptable defects.

User Note: Minor arc strikes do not reduce the strength of AWS Group II materials (refer to Van Malssen, 1984).

4) The effective throat for flare bevel groove welds shall be calculated in accordance with equation 4.2-18.

User Note: The effective weld throat used by the SJI with round bars is based on SJI research and is more conservative than AWS D1.1 for GMAW for round bars in excess of 9/16" (14 mm). See Steel Joist Institute Technical Digest 8, "Welding of Open Web Steel Joists and Joist Girders".

5) Tack welds that are discontinuous from other welds shall meet the criteria for undercut, but shall be exempt from all other acceptance criteria.

User Note: Joist manufacturers use tack welds in the assembly process, and so long as they do not diminish the strength of the base metal and are not incorporated into the final weld for strength, they are not required to meet other inspection criteria.

6) The weld profile shall be considered acceptable provided neither the weld leg nor the weld throat is undersized less than AWS D1.1 limits within the weld design length.

7) For material with thickness less than 1/8", AWS D1.1 or D1.3 shall be considered appropriate.

User Note: AWS D1.1 does not address thicknesses less than 1/8" for hot rolled material and AWS D1.3 does not address hot rolled material, thus SJI has extended the ranges to include these material thicknesses.

b) Steel joist and Joist Girder resistance welded joints shall follow a preproduction validation procedure and a production checking procedure and shall meet the strength requirements of this Specification.

User Note: Spot, flash or upset resistance welds should have a written welding procedure qualification record and a systematic quality plan. For further information, see Steel Joist Institute Technical Digest 8, "Welding of Open Web Steel Joists and Joist Girders".

c) Welded Connections for Crimped-End Angle Web Members

1) The connection of each end of a crimped angle web member to each side of the chord shall consist of a weld group made of more than a single line of weld. The design weld length shall include an end return of no less than two times the nominal weld size.

d) Welding Program

1) The manufacturer's welders shall be qualified in accordance with either AWS D1.1 or AWS D1.3 for the applicable weld type, position, and material.

2) Manufacturers shall have a program for establishing weld procedures and operator qualification, and for weld sampling and testing. Each manufacturing facility shall have trained inspectors, and an engineer responsible for all welding procedures.

e) Weld Inspection by Outside Agencies (See Section 5.14)

1) The agency shall arrange for visual inspection to determine that welds meet the acceptance standards of Section 4.5.1.

User Note: Ultrasonic, X-ray, and magnetic particle testing are inappropriate for joists due to the configurations of the components and welds.

4.5.2 Strength

4.5.2.1 Joint Connections: Joint connections shall develop the maximum force due to any of the design loads, but not less than 50 percent of the strength of the member in tension or compression, whichever force is the controlling factor in the selection of the member.

4.5.2.2 Shop Splices: Shop splices shall be permitted to occur at any point in chord or web members. Splices shall be designed for the member force, but not less than 50 percent of the member strength. All component parts comprising the cross section of the chord or web member (including reinforcing plates, rods, etc.) at the point of the splice shall develop a nominal tensile strength of at least 1.2 times the product of the yield strength and the full design area of the chord or web. The "full design area" shall be defined as the minimum required area such that the required stress will be less than the design (LRFD) or allowable (ASD) stress.

User Note: For more information on welding, see Steel Joist Institute Technical Digest 8, "Welding of Open Web Steel Joists and Joist Girders".

4.5.3 Field Splices

Field Splices shall be designed by the manufacturer and shall be either bolted or welded. Splices shall be designed for the member force, but not less than 50 percent of the member strength.

4.5.4 Eccentricity

Members connected at a joint shall have their center of gravity lines meet at a point, where practical. Ends of joists or Joist Girders shall be proportioned to resist bending produced by eccentricity at the support.

For a single component web member, the eccentricity shall be permitted to be neglected where it does not exceed the lesser of three-quarters of the over-all dimension of the chord or 2" (51 mm). This eccentricity, measured in the plane of the joist, shall be the perpendicular distance from the centroidal axis of that web member to the point on the centroidal axis of the chord which is vertically above or below the intersection of the centroidal axis of the web member(s) forming the joint in accordance with Figure 4.5-1.

For a web member composed of at least two shapes, the eccentricity on either side of the neutral axis of chord members, measured in the plane of the joist at the joint work point, shall be permitted to be neglected where the web intersect point does not exceed one and one-half times the distance between the neutral axis and the back of the chord in accordance with Figure 4.5-2.

If these limits are exceeded, provision shall be made for the stresses due to eccentricity.

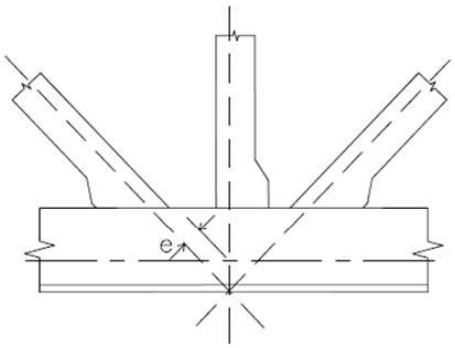

FIGURE 4.5-1

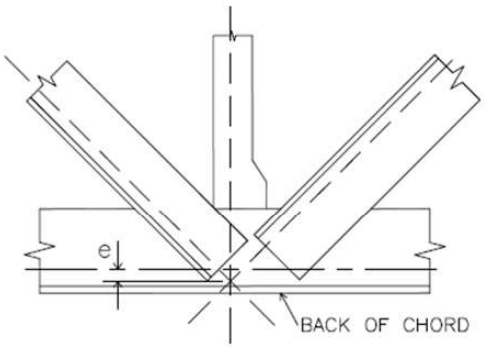

FIGURE 4.5-2

4.6 CAMBER

Steel joists and Joist Girders 100'-0" or less shall have a manufactured camber in accordance with Table 4.6-1:

TABLE 4.6-1

TOP CHORD LENGTH		APPROXIMATE CAMBER	
20'-0″	(6096 mm)	1/4″	(6 mm)
30'-0″	(9144 mm)	3/8″	(10 mm)
40'-0″	(12192 mm)	5/8″	(16 mm)
50'-0″	(15240 mm)	1″	(25 mm)
60'-0″	(18288 mm)	1 1/2″	(38 mm)
70'-0″	(21336 mm)	2″	(51 mm)
80'-0″	(24384 mm)	2 3/4″	(70 mm)
90'-0″	(27432 mm)	3 1/2″	(89 mm)
100'-0″	(30480 mm)	4 1/4″	(108 mm)

For lengths exceeding 100'-0", manufactured camber equal to Span/300 shall be used.

User Note: The specifying professional shall give consideration to coordinating this approximate camber with adjacent framing.

4.7 VERIFICATION OF DESIGN AND MANUFACTURE

User Note: This Section is included as part of this Specification since the verification of design and manufacture is a requirement of any Steel Joist Institute member company in order to be in compliance with this Specification. This Section applies only to a Steel Joist Institute member manufacturer.

4.7.1 Design Calculations

Companies manufacturing any K-Series, LH-Series, DLH-Series Joists or Joist Girders shall submit design data to the Steel Joist Institute, or an independent agency approved by the Steel Joist Institute, for verification of compliance with this Specification. Design data shall be submitted in detail and in the format specified by the Steel Joist Institute.

4.7.2 Tests of Chord and Web Members

Each manufacturer shall, at the time of design review by the Steel Joist Institute, verify by tests that the design, in accordance with Section 4.1 through Section 4.5, provides the theoretical strength of critical members. Such tests shall be evaluated considering the actual yield strength of the members of the test joists.

Material tests for determining mechanical properties of component members shall be conducted.

4.7.3 Tests of Joints and Connections

Each manufacturer shall, at the time of design review by the Steel Joist Institute, verify by shear tests on representative joints of typical joists that connections will meet the provision of Section 4.5.2. Chord and web members shall be permitted to be reinforced for such tests.

4.7.4 In-Plant Inspections

Each manufacturer shall verify their ability to manufacture K-Series, LH-Series, DLH-Series Joists and Joist Girders through periodic In-Plant Inspections. Inspections shall be performed by an independent agency approved by the Steel Joist Institute. The frequency, manner of inspection, and manner of reporting shall be determined by the Steel Joist Institute. The plant inspections shall not represent a guarantee of the quality of any specific joists; this responsibility shall lie fully and solely with the individual manufacturer.

SECTION 5.
APPLICATION

5.1 USAGE

5.1.1 Scope: This Specification shall apply to any type of structure where floors or roofs are to be supported directly by steel joists installed as hereinafter specified or where steel joists are to be supported directly by Joist Girders installed as hereinafter specified. Where joists or Joist Girders are used other than on simple spans under uniformly distributed loading for joists, or under equal concentrated gravity loading for Joist Girders, as prescribed in Section 4.1, they shall be designed to limit the required stresses to those listed in Section 4.2. The magnitude and location of all loads and forces to be considered in the joist or Joist Girder design shall be provided on the structural drawings.

5.1.2 Continuous Frame Action: Where a rigid connection of the bottom chord is to be made to a column or other structural support, the steel joist or Joist Girder is then no longer simply-supported, and the system shall be investigated for continuous frame action by the specifying professional. The specifying professional shall design the supporting structure, including the design of columns, connections, and moment plates. This design shall account for the stresses caused by lateral forces and the stresses due to connecting the bottom chord to the column or other structural support.

The designed detail of a rigid type connection and moment plates shall be shown on the structural drawings by the specifying professional. The moment plates shall be furnished by other than the joist manufacturer.

User Note: For further reference concerning continuous frame action and their connections, refer to Steel Joist Institute Technical Digest No. 11, “Design of Lateral Load Resisting Frames Using Steel Joists and Joist Girders”.

5.2 SPAN

Except for joist substitutes, the span of a joist or Joist Girder shall not exceed 24 times the depth. Design length shall equal the span minus 4 inches (102 mm) as shown in Figure 5.2-1 “Definition of Span”.

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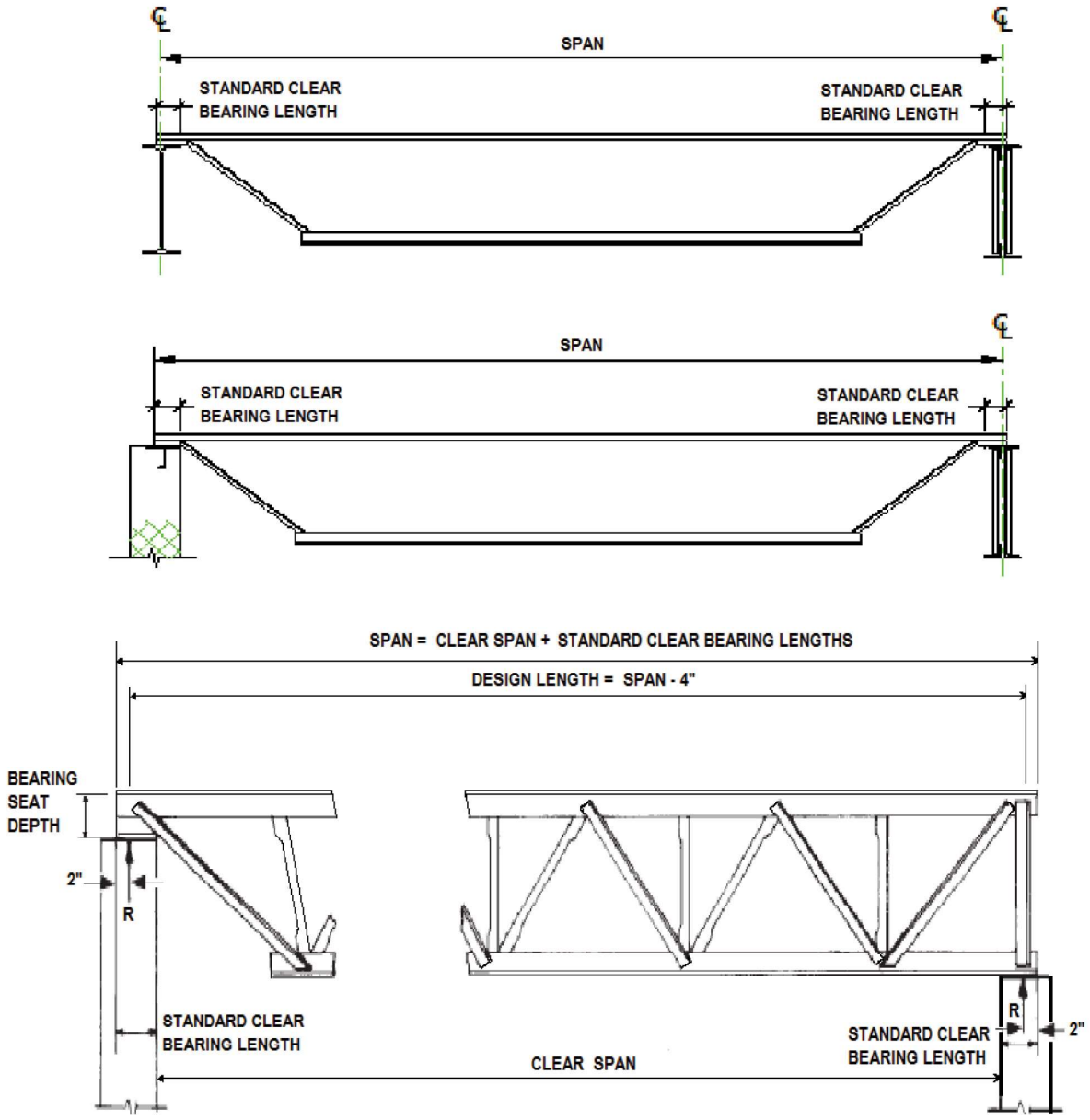
Figure 5.2-1
DEFINITION OF SPAN
(U. S. Customary Units)



NOTES:
1) DESIGN LENGTH = SPAN - 4"
2) MINIMUM BEARING LENGTHS SHALL MEET THE REQUIREMENTS OF SECTION 5.4. BEARING LENGTHS SHOWN MAY VARY BETWEEN STANDARD CLEAR BEARING AND MINIMUM BEARING LENGTH.
3) PARALLEL CHORD JOISTS INSTALLED TO A SLOPE GREATER THAN 1/2 INCH PER FOOT SHALL USE A SPAN DEFINED BY THE LENGTH ALONG THE SLOPE.

5.3 DEPTH

Steel joists or Joist Girders shall have either parallel chords or a top chord pitch of up to 1/2 inch per foot (1:24). The steel joist or Joist Girder designation depth or nominal depth shall be the depth at mid-span, except for double pitched joists which shall be the depth at the ridge.

5.4 END SUPPORTS

Consideration of the reactions, vertical and lateral, shall be taken by the specifying professional in the design of the steel support, or the steel bearing plate on masonry or concrete. The standard location of the end reaction shall be 2" (51 mm) from the end of the span (exclusive of extensions) at each end of the steel joist or Joist Girder as shown in Figure 5.2-1 "Definition of Span". The standard end reaction location shall require the minimum bearing lengths shown in Table 5.4-1.

TABLE 5.4-1

JOIST SECTION NUMBER[1]	STANDARD CLEAR BEARING LENGTH	MINIMUM BEARING LENGTH ON STEEL
K1-12	4" (102 mm)	2 ½" (64 mm)
LH02-06	6" (152 mm)	2 ½" (64 mm)
LH07-17, DLH10-17, JG	6" (152 mm)	4" (102 mm)
LH/DLH18-25, JG[2]	6" (152 mm)	6" (152 mm)

(1) Last digit(s) of joist designation shown in Load Table.
(2) **Joist Girders** with a self weight greater than 50 plf (0.73 kN/m).

If the specifying professional requires the end reaction to be located at a distance from the face of support more than the standard clear bearing length values shown in Table 5.4-1 minus 2" (51 mm), the structural drawings shall indicate the required special location of the end reaction. The seat depth shall also be increased to the special minimum bearing seat depth per Table 5.4-3.

5.4.1 Masonry and Concrete

5.4.1.1 Scope: A K-Series, LH-Series, DLH-Series Joist or Joist Girder end supported by masonry or concrete shall bear on steel bearing plates and shall be designed as steel bearing.

5.4.1.2 Bearing Length: The ends of K-Series Joists shall extend a distance of not less than 4 inches (102 mm) over the face of masonry or concrete support unless it is deemed necessary to bear less than 4 inches (102 mm) over the support. The ends of LH-Series, DLH-Series Joists and Joist Girders shall extend a distance of not less than 6 inches (152 mm) over the face of masonry or concrete support unless it is deemed necessary to bear less than 6 inches (152 mm) over the support.

5.4.1.3 Anchorage: **K**-Series, **LH**-Series, **DLH**-Series Joists and **Joist Girders** shall be anchored to the steel bearing plate per Section 5.7.

The steel bearing plate shall be located not more than 1/2 inch (13 mm) from the face of the wall. If the steel bearing plate is located more than 1/2 inch (13 mm) from the face of the wall, or the minimum bearing over the masonry or concrete support cannot be provided as shown in Table 5.4-1, special consideration shall be given to the design of the steel bearing plate and the masonry or concrete by the specifying professional.

The steel bearing plate width shall not be less than that shown in Table 5.4-2 perpendicular to the length of the joist. The plate is to be designed by the specifying professional and shall be furnished by other than the joist manufacturer.

TABLE 5.4-2

JOIST SECTION NUMBER[1]	MINIMUM BEARING PLATE WIDTH
K1-12, LH02-06	7" (178 mm)
LH07-17, DLH10-17, JG	9" (229 mm)
LH/DLH18-25, JG[2]	14" (356 mm)

(1) Last digit(s) of joist designation shown in Load Table.
(2) Joist Girders with a self weight greater than 50 plf (0.73 kN/m).

5.4.2 Steel

The ends of K-Series, LH-Series, DLH-Series Joists and Joist Girders shall be anchored to the support per Section 5.7.

5.4.3 Bearing Depth

The standard non-sloping bearing seat depths shall be as shown in Table 5.4-3. If the steel joist slopes 3/8 inch per foot or greater, the high end bearing seat shall require additional depth due to the slope.

User Note: The Steel Joist Institute Code of Standard Practice provides guidance for determining additional seat depth requirements for sloped joists.

TABLE 5.4-3

JOIST SECTION NUMBER[1]	STANDARD BEARING SEAT DEPTH	STANDARD CLEAR BEARING LENGTH	SPECIAL MINIMUM BEARING SEAT DEPTH[2]
K1-12	2 ½" (64 mm)	4" (102 mm)	0.6 x (RP + 2 ½" (64 mm))
LH02-17, DLH10-17	5" (127 mm)	6" (152 mm)	0.6 x (RP + 4" (102 mm))
LH/DLH18-25	7 ½" (191 mm)	6" (152 mm)	0.6 x (RP + 4" (102 mm)) + 2 ½" (64 mm)
JG	7 ½" (191 mm)	6" (152 mm)	RP + 4" (102 mm)

(1) Last digit(s) of joist designation shown in Load Table.
(2) RP is equal to the distance the reaction is to occur from the face of the wall or leading edge of support member. The equation is not applicable for the high end of a sloped joist or Joist Girder.

When the specifying professional requires the steel joist or Joist Girder reaction to occur at or near the centerline of the wall or other support, a special bearing seat depth shall be required and a note shall be placed on the structural drawings identifying where the reaction is to occur. The specified bearing seat depth shall be increased according to Table 5.4-3 to allow for this special requirement.

5.5 BRIDGING or BRACING

Joist Girders shall be proportioned such that they can be erected without bridging. Therefore, the following requirements shall be met:

a) The ends of the bottom chord shall be restrained from lateral movement to brace the girder from overturning. For Joist Girders at columns in steel frames, restraint shall be provided by a stabilizer plate on the column.

b) No other loads shall be placed on the Joist Girder until the steel joists bearing on the Joist Girder are in place and positively attached to the Joist Girder.

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User Note: See Section 5.12 for bridging or bracing required for uplift forces.

Steel joist top and bottom chord bridging shall be required and shall consist of one or both of either horizontal or diagonal bridging.

5.5.1 Horizontal Bridging

Horizontal bridging lines shall consist of continuous horizontal steel members. The ℓ/r ratio of the bridging member shall not exceed 300, where ℓ is the distance in inches (millimeters) between attachments and r is the least radius of gyration of the bridging member.

5.5.2 Diagonal Bridging

Diagonal bridging lines shall consist of cross-bracing with a ℓ/r ratio of not more than 200, where ℓ is the distance in inches (millimeters) between connections and r is the least radius of gyration of the bracing member. Where cross-bracing members are connected at their point of intersection, the ℓ distance shall be taken as the distance in inches (millimeters) between connections at the point of intersection of the bridging members and the connections to the chords of the joists.

5.5.2.1 Diagonal Erection Bridging

User Note: Joists exhibit varying degrees of stability dependent upon the span, depth, member sizes, self weight and other parameters. Bolted diagonal Erection Bridging which must be installed prior to releasing hoisting cables may be required.

Where required as identified below, bolted diagonal Erection Bridging shall be required and shall be in accordance with the following:

(a) For joist spans up through and including 60 feet (18288 mm) in length;

Welded horizontal bridging shall be permitted except where the row of bridging nearest the center is required to be bolted diagonal Erection Bridging as indicated by the **Red** shaded area in the Load Tables. Hoisting cables shall not be released until this row of bolted diagonal Erection Bridging is completely installed and anchored.

Bolted diagonal Erection Bridging shall be provided as required in the SJI Load Tables wherever a standard SJI Section Number designation is specified. For spans 60 feet (18288mm) or less, in the absence of a standard SJI Section Number designation, minimum bolted diagonal Erection Bridging requirements shall be determined by:

1) Matching the joist design to an equivalent standard SJI Section Number designation to determine the span at which Erection Bridging is needed as designated in the tables; or
2) Using Equation 5.5-1 to determine the joist stability and the need for Erection Bridging.

$$W = \frac{-b + \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a} \quad ; \qquad \text{If , } \frac{w_u}{w_{actual}} > 1.00 \text{ Erection Bridging is not required.} \qquad (5.5\text{-}1)$$

$$a = \left(\frac{\pi^2 + 3}{24} \right)^2$$

$$b = P \cdot \frac{\pi^2 + 3}{12} \cdot \frac{\pi^2 + 4}{16} - \frac{\pi^4 \cdot E \cdot I_y}{2 \cdot (k \cdot L)^3} \cdot \left[\beta_x \cdot \left(\frac{\pi^2 - 3}{24} \right) - \frac{y_o}{2} \right]$$

$$c = (P)^2 \left(\frac{\pi^2 + 4}{16} \right)^2 - \frac{\pi^4 \cdot E \cdot I_y}{2 \cdot (k \cdot L)^3} \cdot \left[P \cdot \left(\beta_x \cdot \frac{\pi^2 - 4}{16} - a_e \right) + \frac{\pi^4 \cdot E \cdot C_w}{2 \cdot (k \cdot L)^3} + \frac{\pi^2 \cdot G \cdot J}{2 \cdot k \cdot L} \right]$$

Where:

P = Factored weight of erector = 1.2 x (assumed weight of 250 lbs.) = 300 lbs. (1334 N)

E = Modulus of elasticity= 29,000,000 psi (200,000 MPa)

I_y = Joist moment of inertia about y-axis, in.^{4} (mm^4) $\quad I_y = I_{yt} + I_{yb}$

I_{yt} = Top chord moment of inertia about y-axis, in.^{4} (mm^4)

I_{yb} = Bottom chord moment of inertia about y-axis, in.^{4} (mm^4)

L = Joist Span, in. (mm)

k = Effective length factor = 0.85

β_x = Cross-Sectional parameter $\quad \beta_x = \frac{1}{I_x}\left[A_b \cdot (d_e - y)^3 - A_t \cdot y^3 \right] - 2 \cdot y_o$

A_b = Area of bottom chord, in.^{2} (mm^2)

A_t = Area of top chord, in.^{2} (mm^2)

d_e = Joist effective depth, in.(mm) $\quad d_e = d - y_t - y_b$

y_t = Neutral axis of top chord, in. (mm)

y_b = Neutral axis of bottom chord, in. (mm)

y = Distance from centroid of top chord to centroid of cross section, in. (mm) $\quad y = \frac{A_b \cdot d_e}{A_t + A_b}$

I_x = Joist moment of inertia about x-axis, in.^{4} (mm^4) $\quad I_x = A_t y^2 + A_b (d_e - y)^2$

y_o = Distance from centroid of cross section to shear center, in. (mm) $\quad y_o = -y + \frac{I_{yb} \cdot d_e}{I_y}$

a_e = Vertical location of load P from shear center (locate at joist center of gravity), in. (mm), where $a_e = y_o$

C_w = Warping constant $\quad C_w = \frac{d_e^{\,2} \cdot I_{yb} \cdot I_{yt}}{I_y}$

G = Shear modulus, psi (MPa) $\quad G = 0.385E$

J = St. Venant torsion constant, in.^{4} (mm^4) $\quad J = \frac{1}{3}\left(A_t \cdot t_t^{\,2} + A_b \cdot t_b^{\,2} \right)$

t_t = Thickness of top chord, in. (mm)

t_b = Thickness of top chord, in. (mm)

w_u = Ultimate lateral buckling load $\quad w_u = \frac{W \cdot 12}{L}$, plf $\quad w_u = \frac{W}{L}$, (kN/m)

w_{actual} = Joist self-weight, plf (kN/m)

b) For joist spans greater than 60 feet (18288 mm) in length;
Bolted diagonal Erection Bridging shall be used as indicated by the **Blue** and Gray shaded areas of the Load Tables. Hoisting cables shall not be released until all rows of bolted diagonal Erection Bridging are completely installed and anchored. Where the joist spacing is less than 0.70 x joist depth, bolted horizontal bridging shall be used in addition to bolted diagonal Erection Bridging.

c) The bolted diagonal Erection Bridging determined by Section 5.5.2.1a and Section 5.5.2.1b shall be considered a minimum. This bolted diagonal Erection Bridging shall be indicated on the placement plans.

User Note: Joists with special profiles having a higher center of gravity as compared to a parallel chord joist, joists which are canted, or joists having any condition which may create instability, may require additional bridging and/or special erection methods.

5.5.3 Quantity and Spacing of Bridging

5.5.3.1 Scope: Bridging shall be properly spaced and anchored to support the decking and the employees prior to the attachment of the deck to the top chord. The maximum spacing between lines of bridging, ℓ_{brmax} shall be the lesser of,

$$\ell_{brmax} = \left(124 + 0.67\, d_j + 28\frac{d_j}{L}\right) r_y \text{, in.} \qquad (5.5\text{-}2a)$$

$$\ell_{brmax} = \left(124 + 0.026\, d_j + 0.34\frac{d_j}{L}\right) r_y \text{, mm} \qquad (5.5\text{-}2b)$$

or,

$$\ell_{brmax} = 170\ r_y \qquad (5.5\text{-}3)$$

Where:

d_j is the steel joist depth, in. (mm)

L is the joist span length, ft. (m)

r_y is the radius of gyration of the top chord about the vertical axis of the joist cross section, in. (mm)

5.5.3.2 Number of Rows: The number of rows of top chord bridging shall not be less than as shown in Table 5.5-1 and the spacing shall meet the requirements of Equations 5.5-2 and 5.5-3. The number of rows of bottom chord bridging, including bridging required per Section 5.12, shall not be less than the number of top chord rows. Rows of bottom chord bridging shall be permitted to be spaced independently of rows of top chord bridging. The spacing of rows of bottom chord bridging shall meet the slenderness requirement of Section 4.3 and any specified strength requirements.

5.5.3.3 DLH Joist Section 21 and Greater: For DLH-Series joist Section Number 21 and greater, bridging shall be installed near a bottom chord panel point or an extra web member shall be furnished to brace the bottom chord for the vertical component of the bridging force equal to the horizontal bracing force.

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TABLE 5.5-1

U.S. CUSTOMARY UNITS

NUMBER OF ROWS OF TOP CHORD BRIDGING[2]

Section Number[1]	Joist Depth	1 Row	2 Rows	3 Rows	4 Rows	5 Rows	6 Rows	7 Rows	8 Rows	9 Rows
K1	All	17	>17 to 26	>26 to 28						
K2	All	21	>21 to 30	>30 to 32						
K3	All	18	>18 to 26	>26 to 40						
K4	All	20	>20 to 30	>30 to 41	>41 to 48					
K5	12K to 24K	20	>20 to 30	>30 to 42	>42 to 48					
	26K	28	>28 to 41	> 41 to 52						
K6	14K to 24K	20	>20 to 31	>31 to 42	>42 to 48					
	26K & 28K	28	>28 to 41	>41 to 54	>54 to 56					
K7	16K to 24K	23	>23 to 34	>34 to 48						
	26K to 30K	29	>29 to 44	>44 to 60						
K8	24K	25	>25 to 39	>39 to 48						
	26K to 30K	29	>29 to 44	>44 to 60						
K9	16K to 24K	22	>22 to 34	>34 to 48						
	26K to 30K	29	>29 to 44	>44 to 60						
K10	18K to 24K	22	>22 to 38	>38 to 48						
	26K to 30K	29	>29 to 48	>48 to 60						
K11	22K	24	>24 to 39	>39 to 44						
	30K	34	>34 to 49	>49 to 60						
K12	24K	25	>25 to 43	>43 to 48						
	26K to 30K	29	>29 to 47	>47 to 60						
LH02-03	All	20	>20 to 30	>30 to 40	>40					
LH04-05	All	22	>22 to 33	>33 to 44	>44 to 55	>55				
LH06-08	All	26	>26 to 45	>45 to 60	>60 to 75	>75				
LH09	All	26	>26 to 48	>48 to 64	>64 to 80	>80				
LH/DLH10	All	28	>28 to 54	>54 to 72	>72 to 90	>90				
LH/DLH11	All	30	>30 to 54	>54 to 72	>72 to 90	>90 to 108	>108			
LH/DLH12	All	34	>34 to 55	>55 to 74	>74 to 92	>92 to 111	>111			
LH/DLH13	All	36	>36 to 63	>63 to 84	>84 to 105	>105 to 126	>126			
LH/DLH14	All	38	>38 to 64	>64 to 86	>86 to 107	>107 to 129	>129			
LH/DLH15	All	42	>42 to 73	>73 to 98	>98 to 122	>122 to 147	>147			
LH/DLH 16-17	All	44	>44 to 75	>75 to 100	>100 to 125	>125 to 150	>150 to 175	>175		
LH/DLH 18-20	All	52	>52 to 78	>78 to 104	>104 to 130	>130 to 156	>156 to 182	>182 to 208	>208 to 234	>234
LH/DLH 21-25	All	60	>60 to 90	>90 to 120	>120 to 150	>150 to 180	>180 to 210	>210		

(1) Last digit(s) of joist designation shown in Load Table.

(2) Distances are Joist Span lengths in feet – See "Definition of Span" Figure 5.2-1. Refer to the Joist Load Table and Specification Section 6 for required bolted diagonal bridging and additional stability requirements. See Section 5.12 for additional bridging required for uplift design.

5.5.4 Sizing of Bridging

Horizontal and diagonal bridging shall be capable of resisting the nominal unfactored horizontal compressive force, P_{br} given in Equation 5.5-4.

$$P_{br} = 0.0025\ n\ A_t\ F_{construction}\ ,\ \text{kips (N)} \qquad (5.5\text{-}4)$$

Where:

n = 8 for horizontal bridging

n = 2 for diagonal bridging

A_t = cross sectional area of joist top chord, in.^2 (mm^2)

$F_{construction}$ = assumed ultimate stress in top chord to resist construction loads, determined in accordance with the following:

$$F_{construction} = \left(\frac{\pi^2 E}{\left(\frac{0.9\,\ell_{brmax}}{r_y} \right)^2} \right) \geq 12.2\ \text{ksi} \qquad (5.5\text{-}5a)$$

$$F_{construction} = \left(\frac{\pi^2 E}{\left(\frac{0.9\,\ell_{brmax}}{r_y} \right)^2} \right) \geq 84.1\ \text{MPa} \qquad (5.5\text{-}5b)$$

Where:

E = Modulus of Elasticity of steel = 29,000 ksi (200,000 MPa)

and $\frac{\ell_{brmax}}{r_y}$ is determined from Equations 5.5-2 or 5.5-3

The bridging nominal horizontal unfactored compressive forces, P_{br}, shall be in accordance with Table 5.5-2.

TABLE 5.5-2

BRIDGING NOMINAL HORIZONTAL UNFACTORED COMPRESSIVE FORCE					
JOIST SECTION NUMBER[1]	HORIZONTAL BRIDGING P_{br} (n=8)		REQUIRED BRIDGING CONNECTION WELD[2]	DIAGONAL BRIDGING P_{br} (n=2)	
	Lbs.	(N)	In.	Lbs.	(N)
K1-8	340	(1512)	1/8" x 1" (3mm x 25mm)	85	(378)
K9-10, LH02-03	450	(2002)		113	(503)
K11-12, LH04-05	560	(2491)		140	(623)
LH06-08	750	(3336)		188	(836)
LH09	850	(3781)		213	(945)
LH/DLH10	900	(4003)		225	(1001)
LH/DLH11	950	(4226)		238	(1056)
LH/DLH12	1100	(4893)		275	(1223)
LH/DLH13	1200	(5338)		300	(1334)
LH/DLH14	1300	(5783)		325	(1446)
LH/DLH15	1450	(6450)		363	(1612)
LH/DLH16-17	1850	(8229)	1/8" x 1 ½ " (3mm x 38mm)	463	(2057)
LH/DLH18-20	2350	(10453)		585	(2602)
LH/DLH21-22	3150	(14012)	1/8" x 2" (3mm x 51mm)	790	(3514)
LH/DLH23-24	4130	(18371)	1/8" x 3" (3mm x 76mm)	1035	(4604)
LH/DLH25	4770	(21218)		1195	(5316)

(1) Last digit(s) of joist designation shown in Load Table.
(2) Or other connection type designed for the required force.

5.5.5 Connections

Connections to the joist chords shall be made by welding or mechanical means and shall be capable of resisting the unfactored or nominal horizontal force, P_{br}, of Equation 5.5-4 but not less than 700 pounds (3114 N).

5.5.6 Bottom Chord Bearing Joists

Where bottom chord bearing joists are utilized, a row of diagonal bridging shall be provided near the support(s). This bridging shall be installed and anchored before the hoisting cable(s) is released.

5.6 INSTALLATION OF BRIDGING

Bridging shall support the top and bottom chords against lateral movement during the construction period and shall hold the steel joists in the approximate position as shown on the joist placement plans.

The ends of all bridging lines terminating at walls or beams shall be anchored thereto.

5.7 BEARING SEAT ATTACHMENTS

5.7.1 Masonry and Concrete

Ends of K-Series, LH-Series, and DLH-Series Joists and Joist Girders resting on steel bearing plates on masonry or structural concrete shall be attached thereto, as shown in Table 5.7-1, with a minimum of two fillet welds, or with two bolts, or the equivalent.

5.7.2 Steel

Ends of K-Series, LH-Series, and DLH-Series Joists and Joist Girders resting on steel supports shall be attached thereto, as shown in Table 5.7-1, with a minimum of two fillet welds, or with two bolts, or the equivalent. Where K-Series, LH-Series and DLH-Series Joists and Joist Girders are used to provide lateral stability to the supporting member, the final connection shall be made by welding or as designated by the specifying professional.

TABLE 5.7-1

JOIST SECTION NUMBER [1]	MINIMUM FILLET WELD	MINIMUM BEARING SEAT BOLTS FOR ERECTION
K1-12	2– 1/8" x 2 1/2" (3 x 64 mm)	2– 1/2" (13 mm) A307
LH02-06	2– 3/16" x 2 1/2" (5 x 64 mm)	
LH07-17, DLH10-17, JG	2– 1/4" x 2 1/2" (6 x 64 mm)	2– 3/4" (19 mm) A307
LH/ DLH18-25, JG[2]	2– 1/4" x 4" (6 x 102 mm)	2– 3/4" (19 mm) A325

(1) Last digit(s) of joist designation shown in load table.
(2) Joist Girders with a self weight greater than 50 plf (0.73 kN/m).

5.7.3 Uplift

Where uplift forces are a design consideration, roof joists shall be anchored to resist such forces and shall meet the requirements of Section 5.12.

5.8 JOIST SPACING

Joists shall be spaced so that the loading on each joist does not exceed the design load (LRFD or ASD) for the particular joist designation and span as shown in the applicable load tables.

5.9 FLOOR AND ROOF DECKS

5.9.1 Material

Floor and roof decks shall be permitted to consist of cast-in-place or pre-cast concrete or gypsum, cold-formed steel, wood, or other suitable material capable of supporting the required load at the specified joist spacing.

5.9.2 Thickness

Cast-in-place slabs shall be not less than 2 inches (51 mm) thick.

5.9.3 Centering

Centering for cast-in-place slabs shall be permitted to be ribbed metal lath, corrugated steel sheets, paper-backed welded wire fabric, removable centering or any other suitable material capable of supporting the slab at the designated joist spacing.

Centering shall not cause lateral displacement or damage to the top chord of joists during installation or removal of the centering or placing of the concrete.

5.9.4 Bearing

Slabs or decks shall bear uniformly along the top chords of the joists.

5.9.5 Attachments

The spacing of attachments along the joist top chord shall not exceed 36 inches (914 mm). Such attachments of the slab or deck to the top chords of joists shall be capable of resisting the forces given in Table 5.9-1.

TABLE 5.9-1

JOIST SECTION NUMBER[1]	NOMINAL FORCE REQUIRED[2]
K1-12	100 lbs/ft. (1.46 kN/m)
LH02-04	120 lbs/ft. (1.75 kN/m)
LH05-09	150 lbs/ft. (2.19 kN/m)
LH/DLH10-17	200 lbs/ft. (2.92 kN/m)
LH/DLH18-19	250 lbs/ft. (3.65 kN/m)
LH/DLH20-21	300 lbs/ft. (4.38 kN/m)
LH/DLH22-24	420 lbs/ft. (6.13 kN/m)
LH/DLH25	520 lbs/ft. (7.59 kN/m)
(1) Last digit(s) of joist designation shown in Load Table. (2) Nominal bracing force is unfactored.	

5.9.6 Wood Nailers

Where wood nailers are used, such nailers in conjunction with deck or slab shall be firmly attached to the top chords of the joists in conformance with Section 5.9.5.

5.9.7 Joist With Standing Seam Roofing or Laterally Unbraced Top Chords

Where the roof systems do not provide lateral stability for the steel joists in accordance with Section 5.9.5 sufficient stability shall be provided to brace the steel joists laterally under the full design load. For this condition, the compression chord design shall include the effects of both the in-plane and out-of-plane buckling of the steel joist (e.g., buckling about the vertical axis of the steel joist cross section). In any case where the attachment requirement of Section 5.9.5 is not achieved, out-of-plane strength shall be achieved by adjusting the bridging spacing and/or increasing the compression chord area and the y-axis radius of gyration. The effective slenderness ratio about the vertical axis equals $0.94\ L/r_y$; where L is the bridging spacing in inches (millimeters) and r_y is the radius of gyration of the top chord in inches (millimeters). The maximum bridging spacing shall not exceed that specified in Section 5.5.3.

User Note: Some examples of roof systems which may not provide adequate top chord lateral stability may be standing seam roofs, skylights, or other openings which do not provide top chord attachments per Section 5.9.5.

Horizontal bridging members attached to the compression chords and their anchorages shall be designed for a compressive axial force, P_{br}, given in Equation 5.9-1.

$$P_{br} = 0.001nP + 0.004P\sqrt{n} \geq 0.0025nP, \text{ kips (N)} \quad (5.9\text{-}1)$$

Where n is the number of joists between end anchors and P is the chord design force in kips (N)

The attachment force between the horizontal bridging member and the compression chord shall be 0.01P. Horizontal bridging attached to the tension chords shall be proportioned so that the slenderness ratio between attachments does not exceed 300. Diagonal bridging shall be proportioned so that the slenderness ratio between attachments does not exceed 200.

5.10 DEFLECTION

The deflection due to the design live load shall not exceed the following:

Floors: 1/360 of span.
Roofs: 1/360 of span where a plaster ceiling is attached or suspended, or
1/240 of span for all other cases.

The specifying professional shall give consideration to the effects of deflection and vibration in the selection of joists.

User Note: For further information on vibration, refer to Steel Joist Institute Technical Digest 5, "Vibration of Steel Joist-Concrete Slab Floors".

5.11 PONDING

The ponding investigation shall be performed by the specifying professional.

User Note: For further reference, refer to Steel Joist Institute Technical Digest 3, "Structural Design of Steel Joist Roofs to Resist Ponding Loads" and AISC 360.

5.12 UPLIFT

Where uplift forces due to wind are a design requirement, these forces shall be indicated on the structural drawings in terms of NET uplift in pounds per square foot (Pascals). The structural drawings shall indicate if the net uplift is based upon an LRFD or ASD load combination. When these forces are specified, they shall be considered in the design of joists, Joist Girders, and required bridging or bracing. Wherever uplift due to wind forces is a design consideration, the following shall be required:

a) For joists, a single line of **bottom chord** bridging shall be provided near the first bottom chord panel points.

b) For **Joist Girders**, if the ends of the bottom chord are not strutted and extended to column stabilizer plates, bracing shall be provided near the first bottom chord panel points.

User Note: For further reference, refer to Steel Joist Institute Technical Digest 6, "Structural Design of Steel Joist Roofs to Resist Uplift Loads".

5.13 DIAPHRAGMS AND COLLECTORS

Where diaphragm collector forces due to wind or seismic forces are a design requirement, these forces shall be indicated on the structural drawings. The structural drawings shall indicate the nominal (unfactored) forces. The structural drawings shall also indicate the Seismic Design Category, and the Seismic Force Resisting System type, and applicable seismic design coefficients. When this data is specified, joist collectors or chords in horizontal diaphragm systems, shall be designed in conformance with the provisions of Section 4 through Section 6. End connections and splices in joists incorporated into Seismic Force Resisting System (SFRS) as horizontal diaphragms as collectors or chords shall adhere to the requirements stipulated by the applicable building code.

5.14 INSPECTION

Joists shall be inspected by the manufacturer before shipment to verify compliance of materials and workmanship with the requirements of this Specification.

User Note: If the purchaser requires an inspection of the steel joists or Joist Girders by someone other than the manufacturer's own inspectors, they shall be permitted to reserve the right to do so in their "Invitation to Bid" or the accompanying "Job Specifications". Arrangements shall be made with the manufacturer for such inspection of the joists or Joist Girders at the manufacturing shop by the purchaser's inspectors at purchaser's expense.

5.15 PARALLEL CHORD SLOPED JOISTS AND JOIST GIRDERS

The span of a parallel chord sloped joist or Joist Girder shall be defined by the length along the slope. Minimum depth, load-carrying capacity, and bridging requirements shall be determined by the sloped definition of span. The Load Table capacity shall be the component normal to the joist.

SECTION 6
ERECTION STABILITY AND HANDLING

As a minimum, erection stability and handling of joists and Joist Girders shall meet the requirements of this Section 6.

User Note: Additional requirements for erection of steel joists and Joist Girders can be found in Steel Joist Institute Technical Digest No. 9, “Handling and Erection of Steel Joists and Joist Girders”.

6.1 STABILITY REQUIREMENTS

User Note: It is not recommended that an erector climb on unbridged joists, extreme caution shall be exercised since unbridged joists exhibit some degree of instability under the erector's weight.

a) In steel framing, where joists/Joist Girders are utilized at column lines, the joist/Joist Girder shall be field-bolted at the column. Before hoisting cables are released and before an employee is allowed on the joists/Joist Girder the following conditions shall be met:
   1) The seat at each end of the joist/Joist Girder is attached in accordance with Section 5.7. Where a bolted seat connection is used for erection purposes, as a minimum, the bolts shall be snug tightened. The snug tight condition shall be defined as the tightness that exists where all plies of a joint are in firm contact. This shall be attained by a few impacts of an impact wrench or the full effort of an employee using an ordinary spud wrench.
   2) Where stabilizer plates are required the joist/Joist Girder bottom chord shall engage the stabilizer plate.

   During the construction period, the contractor shall provide means for the adequate distribution of loads so that the carrying capacity of any joist or Joist Girder is not exceeded.

b) Before an employee is allowed on the steel joist: BOTH ends of joists at columns (or joists designated as column joists) shall be attached to its supports. For all other joists a minimum of one end shall be attached before the employee is allowed on the joist. The attachment shall be in accordance with Section 5.7.

   Where a bolted seat connection is used for erection purposes, as a minimum, the bolts shall be snug tightened. The snug tight condition shall be defined as the tightness that exists where all plies of a joint are in firm contact. This shall be attained by a few impacts of an impact wrench or the full effort of an employee using an ordinary spud wrench.

c) On steel joists that do not require erection bridging as shown by either the unshaded area of the Load Tables or as determined by Section 5.5.2.1, only one employee shall be allowed on the steel joist until all bridging is installed and anchored.

d) Where the span of the steel joist is within the Red shaded area of the Load Table, or in the absence of a standard SJI Section Number designation and Erection Bridging is required in accordance with Section 5.5.2.1, the following shall apply:

1) The row of bridging nearest the midspan of the steel joist shall be bolted diagonal Erection Bridging; and
2) Hoisting cables shall not be released until this bolted diagonal Erection Bridging is installed and anchored, unless an alternate method of stabilizing the joist has been provided; and
3) No more than one employee shall be allowed on these spans until all other bridging is installed and anchored.

e) Where the span of the steel joist is within the Blue shaded area of the Load Table, the following shall apply:

1) All rows of bridging shall be bolted diagonal bridging; and
2) Hoisting cables shall not be released until the two rows of bolted diagonal Erection Bridging nearest the third points of the steel joist are installed and anchored; and
3) No more than two employees shall be allowed on these spans until all bridging is installed and anchored.

f) Where the span of the steel joist is in the Gray shaded area of the Load Table, the following shall apply:

1) All rows of bridging shall be bolted diagonal bridging; and
2) Hoisting cables shall not be released until all bridging is installed and anchored; and
3) No more than two employees shall be allowed on these spans until all other bridging is installed and anchored.

g) Where permanent bridging terminus points cannot be used during erection, additional temporary bridging terminus points shall be required to provide lateral stability.

h) In the case of bottom chord bearing joists, the ends of the joist shall be restrained laterally per Section 5.5.6 before releasing the hoisting cables.

i) After the joist is straightened and plumbed, and all bridging is completely installed and anchored, the ends of the joists shall be fully connected to the supports in accordance with Section 5.7.

6.2 LANDING AND PLACING LOADS

a) Except as stated in Section 6.2(d), no "construction loads" shall be allowed on the steel joists until all bridging is installed and anchored, and all joist bearing ends are attached.

User Note: For definition of "construction load" see Code of Federal Regulations (CFR), Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R - Steel Erection, §1926.751 Definitions; January 18, 2001, Washington, D.C.

b) During the construction period, loads placed on the steel joists shall be distributed so as not to exceed the capacity of the steel joists.

c) The weight of a bundle of joist bridging shall not exceed a total of 1000 pounds (454 kilograms). The bundle of joist bridging shall be placed on a minimum of three steel joists that are secured at one end. The edge of the bridging bundle shall be positioned within 1 foot (0.30 m) of the secured end.

d) No bundle of deck shall be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless the following conditions are met:

1) The contractor has first determined from a "qualified person" and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load;
2) The bundle of decking is placed on a minimum of three steel joists;

3) The joists supporting the bundle of decking are attached at both ends;
4) At least one row of bridging is installed and anchored;
5) The total weight of the decking does not exceed 4000 pounds (1816 kilograms); and
6) The edge of the bundle of decking is placed within 1 foot (0.30 meters) of the bearing surface of the joist end.

User Note: For definition of "qualified person" see Code of Federal Regulations (CFR), Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R - Steel Erection, §1926.751 Definitions; January 18, 2001, Washington, D.C.

e) The edge of the construction load shall be placed within 1 foot (0.30 meters) of the bearing surface of the joist end.

6.3 FIELD WELDING

All field welding shall be performed in accordance with the structural drawings. Field welding shall not damage the joists or Joist Girders.

On cold-formed steel members whose yield strength has been attained by cold working, and whose as-formed strength is used in the design, the total length of weld at any one point shall not exceed 50 percent of the overall developed width of the cold-formed section.

6.4 HANDLING

Particular attention shall be considered for the handling and erection of K-Series, LH-Series, DLH-Series steel joists and Joist Girders. Damage to the joists and accessories shall be avoided. Hoisting cables shall be attached at panel point locations and those locations shall be selected to minimize erection stresses.

Each joist shall be adequately braced laterally before any loads are applied. If lateral support is provided by bridging, the bridging lines as defined in Section 6.1(c), 6.1(d), 6.1(e), and 6.1(f) shall be anchored to prevent lateral movement.

6.5 FALL ARREST SYSYTEMS

Steel joists and Joist Girders shall not be used as anchorage points for a fall arrest system unless written direction to do so is obtained from a "qualified person".

User Note: For definition of "qualified person" see Code of Federal Regulations (CFR), Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Safety Standards for Steel Erection; Subpart R - Steel Erection, §1926.751 Definitions; January 18, 2001, Washington, D.C.