

BOLT DESIGN VALUES FOR CONNECTIONS

California Building Code 2007 Edition (CBC), NDS 2005

Douglas Fir-Larch Surfaced Dry (19% Moisture Content)

WOOD TO WOOD CONNECTION				
Bolt value in (lbs) when both members of the connection are loaded either parallel to grain or perpendicular to grain.				
Member		Bolt D (In.)	BASIC ①	
Main t (In.)	Side t (In.)		Single Shear	
			Z //	Z ⊥
1-½	1-½	1/2	480	220
		5/8	600	240
		3/4	720	270
		7/8	850	290
		1	970	310
2-½	1-½	1/2	610	310
		5/8	850	340
		3/4	1020	380
		7/8	1190	410
		1	1360	440
3-½	1-½	1/2	610	330
		5/8	880	460
		3/4	1200	510
		7/8	1590	550
		1	1830	590
3-½	3-½	1/2	720	430
		5/8	1120	560
		3/4	1610	630
		7/8	1970	680
		1	2260	720
5-½	1-½	5/8	880	460
		3/4	1200	590
		7/8	1590	630
		1	2050	680
		1	2050	680
5-½	3-½	5/8	1120	630
		3/4	1610	780
		7/8	2190	910
		1	2660	970
		1	2660	970
7-½	1-½	5/8	880	460
		3/4	1200	590
		7/8	1590	630
		1	2050	680
		1	2050	680
7-½	3-½	5/8	1120	630
		3/4	1610	780
		7/8	2190	930
		1	2660	1110
		1	2660	1110

① These values are taken from NDS 2005 "Table 11A".

WOOD TO CONCRETE OR MASONRY CONNECTION									
NDS 2005 Table 11E									
ALLOWABLE LATERAL LOAD IN LBS/L.FT FOR ANCHOR BOLTS (Z //)									
Lateral load 1/3 increase included.									
Spacing In. o.c.	Mem-ber	Bolt Diam (Inches)				Mem-ber	Bolt Diam (Inches)		
		1/2	5/8	3/4	7/8		5/8	3/4	7/8
8	2x	1297	1855	2534	3372	3x	2354	3072	3870
12	Sill	865	1237	1689	2248	Sill	1569	2048	2580
16		648	928	1267	1686		1177	1536	1935
24		432	618	845	1124		785	1024	1290
32		324	464	633	843		589	768	968
48		216	309	422	562		392	512	645
60		173	247	338	450		314	410	516
72		144	206	282	375		262	341	430

ALLOWABLE VERTICAL LOAD IN LBS/L.FT FOR LEDGER BOLTS (Z ⊥)						
Spacing In. o.c.	Bolt Diam (Inches) Member	Bolt Diam (Inches)				
		1/2	Member	1/2	5/8	3/4
8	2 x 6	570	2 x 8	570	795	885
12	Ledger	380	Ledger	380	530	590
16		285		285	398	443
24		190		190	265	295
32		143		143	199	221
48		95		95	133	148

Spacing In. o.c.	Bolt Diam (Inches) Member	Bolt Diam (Inches)				
		1/2	Member	1/2	5/8	3/4
8	2 x 10 & up	570	2 x 10 & up	570	795	885
12	Ledger	380	Ledger	380	530	590
16		285		285	398	443
24		190		190	265	295
32		143		143	199	221
48		95		95	133	148

Spacing In. o.c.	Bolt Diam (Inches) Member	Bolt Diam (Inches)				
		1/2	Member	1/2	5/8	3/4
8	4 x 6	765	4 x 8	765	1095	1350
12	Ledger	510	Ledger	510	730	900
16		383		383	548	675
24		255		255	365	450
32		191		191	274	338
48		128		128	183	225

Spacing In. o.c.	Bolt Diam (Inches) Member	Bolt Diam (Inches)				
		1/2	Member	1/2	5/8	3/4
8	4 x 10 & up	765	4 x 10 & up	765	1095	1350
12	Ledger	510	Ledger	510	730	900
16		383		383	548	675
24		255		255	365	450
32		191		191	274	338
48		128		128	183	225

**DIVISION OF BUILDING AND SAFETY
COUNTY OF VENTURA**

BUILDING OFFICIAL _____ *Jim MacDonald*

B & S
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