

**TABLE: DF-C5**

**THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION**

**DOUGLAS FIR - LARCH**

**GLUED LAMINATED TIMBER CONVERSION TABLES**

Dry Service Conditions

Glulam Design Values:

Simple Span, Uniformly Loaded

<b>F<sub>bx</sub>, psi</b>	<b>E<sub>x</sub>, psi</b>
2,400	1,800,000

**STEEL CONVERSIONS**

A36 STEEL SECTION	GLULAM SECTIONS, width (in.) x depth (in.)			
	ROOF BEAMS		FLOOR BEAMS	
	SNOW LOAD Load Duration Factor = 1.15		Load Duration Factor = 1.00	
W6x9	3 1/8 x 10 1/2	5 1/8 x 9	3 1/8 x 10 1/2	5 1/8 x 9
W8x10	3 1/8 x 12	5 1/8 x 9	3 1/8 x 13 1/2	5 1/8 x 12
W8x15	3 1/8 x 15	5 1/8 x 12	3 1/8 x 15	5 1/8 x 13 1/2
W12x14	3 1/8 x 16 1/2	5 1/8 x 13 1/2	3 1/8 x 18	5 1/8 x 15
W12x16	3 1/8 x 18	5 1/8 x 13 1/2	3 1/8 x 19 1/2	5 1/8 x 16 1/2
W12x19	3 1/8 x 19 1/2	5 1/8 x 16 1/2	3 1/8 x 21	5 1/8 x 18
W10x22	3 1/8 x 21	5 1/8 x 16 1/2	3 1/8 x 19 1/2	5 1/8 x 16 1/2
W12x22	5 1/8 x 18	6 3/4 x 15	5 1/8 x 19 1/2	6 3/4 x 16 1/2
W14x22	5 1/8 x 18	6 3/4 x 16 1/2	5 1/8 x 21	6 3/4 x 18
W12x26	5 1/8 x 19 1/2	6 3/4 x 18	5 1/8 x 21	6 3/4 x 19 1/2
W14x26	5 1/8 x 21	6 3/4 x 18	5 1/8 x 21	6 3/4 x 19 1/2
W16x26	5 1/8 x 21	6 3/4 x 19 1/2	5 1/8 x 22 1/2	6 3/4 x 21
W12x30	5 1/8 x 21	6 3/4 x 19 1/2	5 1/8 x 21	6 3/4 x 19 1/2
W14x30	5 1/8 x 22 1/2	6 3/4 x 19 1/2	5 1/8 x 22 1/2	6 3/4 x 21
W16x31	5 1/8 x 24	6 3/4 x 21	5 1/8 x 25 1/2	6 3/4 x 22 1/2
W14x34	5 1/8 x 24	6 3/4 x 21	5 1/8 x 24	6 3/4 x 22 1/2
W18x35	5 1/8 x 27	6 3/4 x 24	5 1/8 x 27	6 3/4 x 25 1/2
W16x40	5 1/8 x 28 1/2	6 3/4 x 25 1/2	5 1/8 x 27	6 3/4 x 25 1/2
W21x44	5 1/8 x 33	6 3/4 x 28 1/2	5 1/8 x 33	6 3/4 x 30
W18x50	5 1/8 x 34 1/2	6 3/4 x 30	5 1/8 x 31 1/2	6 3/4 x 28 1/2
W21x50	5 1/8 x 34 1/2	6 3/4 x 31 1/2	5 1/8 x 34 1/2	6 3/4 x 31 1/2
W18x55	5 1/8 x 36	6 3/4 x 31 1/2	5 1/8 x 33	6 3/4 x 30
W21x62		6 3/4 x 36	5 1/8 x 37 1/2	6 3/4 x 34 1/2

**Table Specifications:**

These sizes are for dry service condition of use.

Roof beam sections are compared on the basis of equivalent bending resistance only.

Floor beam sections are compared on the basis of equivalent stiffness (EI) only.

Glued laminated timber beam sizes are based on a **span to depth ratio, L/d, of 21**. When the span to depth ratio is different, sizes should be determined by engineering calculations.

Glulam sizes shown should also be checked for shear, deflection and other applicable strength properties and design considerations. For determining glulam roof beam sizes, the bending design value, F<sub>b</sub>, was adjusted by the volume factor. Minimum glulam sizes used in the table are 3-1/8 x 6 and 5-1/8 x 6.

Steel Design values
F <sub>y</sub> = 36 ksi,
F <sub>b</sub> = 0.66 x F <sub>y</sub>
E = 29,000 ksi

Steel sections were selected as the most economical from the "Manual of Steel Construction," AISC, 9th Edition.

**While these design conversions have been prepared in accordance with recognized engineering principles and are based on accurate technical data available, conversions should not be used without competent professional examination and verification of the accuracy, suitability, and applicability by a design professional. AITC MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, THAT THE INFORMATION CONTAINED HEREIN IS SUITABLE FOR ANY GENERAL OR SPECIFIC USE OR IS FREE FROM INFRINGEMENT OF ANY PATENT OR COPYRIGHT. ANY USER OF THIS INFORMATION ASSUMES ALL RISK AND LIABILITY ARISING FROM SUCH USE.**