

Framing Lumber



ADJUSTMENT FACTORS FOR BASE VALUES

SIZE FACTORS (C_F) Table A

Apply to Dimension Lumber BASE VALUES

Grades	Nominal Width (depth)	F_b		F_t	F_c	Other Properties
		2" & 3" thick nominal	4" thick nominal			
SELECT STRUCTURAL, NO.1 & BTR., NO.1, NO.2 & NO.3	2", 3", & 4"	1.5	1.5	1.5	1.15	1.0
	5"	1.4	1.4	1.4	1.1	1.0
	6"	1.3	1.3	1.3	1.1	1.0
	8"	1.2	1.3	1.2	1.05	1.0
	10"	1.1	1.2	1.1	1.0	1.0
	12"	1.0	1.1	1.0	1.0	1.0
	14" & wider	0.9	1.0	0.9	0.9	1.0
CONSTRUCTION & STANDARD	2", 3", & 4"	1.0	1.0	1.0	1.0	1.0
UTILITY	2" & 3"	0.4	—	0.4	0.6	1.0
	4"	1.0	1.0	1.0	1.0	1.0
STUD	2", 3", & 4"	1.1	1.1	1.1	1.05	1.0
	5" & 6"	1.0	1.0	1.0	1.0	1.0
	8" & wider	Use No.3 grade Base Values and Size Factors				

REPETITIVE MEMBER FACTOR (C_R) Table B

Apply to size-adjusted F_b

Where lumber is used repetitively, such as for joists, studs, rafters, and decking, the pieces side by side share the load and the strength of the entire assembly is enhanced. Therefore, where three or more members are adjacent or are not more than 24" on center and are joined by floor, roof, or other load distributing elements, the F_b value can be increased 1.15 for repetitive member use.

Repetitive Member Use

$$F_b \times 1.15$$

DURATION OF LOAD ADJUSTMENT (C_D) Table C

Apply to size-adjusted values

Wood has the property of carrying substantially greater maximum loads for short durations than for long durations of loading. Tabulated design values apply to normal load duration. (Factors do not apply to MOE or F_{cL})

Load Duration	Factor
Permanent	0.9
Ten Years (Normal Load)	1.0
Two Months (Snow Load)	1.15
Seven Day	1.25
Ten Minutes (Wind and Earthquake Loads)	1.6 ¹
Impact	2.0

Confirm load requirements with local codes.

¹ UBC recognizes a factor of 1.33 for ten minute load duration.

HORIZONTAL SHEAR DESIGN VALUES

Horizontal shear values published in Tables 1, 3, 4 and 5 are based upon the maximum degree of shake, check or split that might develop in a piece. Shear design values for lumber have recently been revised and approved by the American Lumber Standard Committee, Inc., in accordance with changes in ASTM D245, *Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber*. These new lumber shear values are higher than earlier assigned values and no longer subject to the horizontal shear adjustment factor C_{H1} .

Design provisions, including requirements for shear design of lumber, are published by the American Forest & Paper Association (AF&PA) in the *National Design Specification® for Wood Construction* (NDS), an ANSI national consensus standard. The new shear values can be used in conjunction with 1997 NDS, except for shear design at notches and connections. Under these exceptions only design values listed in the *1997 NDS Supplement: Design Values for Wood Construction*, or similar values apply. Shear provisions for tension-side notches, and shear design for bending members at connections, have been revised in the 2001 NDS in order to fully utilize the new lumber shear values.

For further information on the new shear design value provisions, contact the American Wood Council Help Desk at 202-463-4713 or by e-mail at awcinfo@afandpa.org.