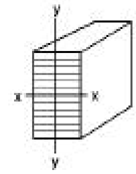
16F-E10 Full Width Headers

Douglas Fir South/Ponderosa Pir **THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION**

Structural Glued Laminated Timber



FLOOR BEAMS
FLOOR LIVE LOAD

F_{bx}	F_{vx}	E_x	C_D	Deflection limit
1600 psi	190 psi	1.4 million psi	1.00	Span / 480

Simple Span Beams
For Preliminary Design Purposes
Lamination thickness: 1-1/2 in.

FLOOR LOAD FACTOR = 0.80

BEAM SIZE		BEAM	BEAM CAPACITY, UNIFORM LOAD w, plf																
Width	Depth	WEIGHT	SPAN, ft																
b, in.	d, in.	plf	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
3 1/2	4 1/2	5.5	1400 B	788 B	413 D	239 D	151 D	101 D	71 D	52 D	39 D	--	--	--	--	--	--	--	--
3 1/2	6	7.3	2489 B	1400 B	896 B	567 D	357 D	239 D	168 D	122 D	92 D	71 D	56 D	45 D	36 D	--	--	--	--
3 1/2	7 1/2	9.1	3000 *	2188 B	1400 B	972 B	698 D	467 D	328 D	239 D	180 D	138 D	109 D	87 D	71 D	58 D	49 D	41 D	--
3 1/2	9	10.9	3000 *	3000 *	2016 B	1400 B	1029 B	788 B	567 D	413 D	311 D	239 D	188 D	151 D	122 D	101 D	84 D	71 D	60 D
3 1/2	10 1/2	12.8	3000 *	3000 *	2744 B	1906 B	1400 B	1072 B	847 B	657 D	493 D	380 D	299 D	239 D	195 D	160 D	134 D	113 D	96 D
3 1/2	12	14.6	3000 *	3000 *	3000 *	2489 B	1829 B	1400 B	1106 B	896 B	736 D	567 D	446 D	357 D	290 D	239 D	199 D	168 D	143 D
3 1/2	13 1/2	16.4	3000 *	3000 *	3000 *	3000 *	2314 B	1772 B	1400 B	1134 B	937 B	788 B	635 D	509 D	413 D	341 D	284 D	239 D	203 D
3 1/2	15	18.2	3000 *	3000 *	3000 *	3000 *	2857 B	2188 B	1728 B	1400 B	1157 B	972 B	828 B	698 D	567 D	467 D	390 D	328 D	279 D
3 1/2	16 1/2	20.1	3000 *	3000 *	3000 *	3000 *	3000 *	2647 B	2091 B	1694 B	1400 B	1176 B	1002 B	864 B	753 B	622 D	519 D	437 D	371 D
3 1/2	18	21.9	3000 *	3000 *	3000 *	3000 *	3000 *	3000 *	2489 B	2016 B	1666 B	1400 B	1193 B	1029 B	896 B	788 B	673 D	567 D	482 D
5 1/2	4 1/2	8.6	2200 B	1238 B	650 D	376 D	237 D	159 D	111 D	81 D	61 D	--	--	--	--	--	--	--	--
5 1/2	6	11.5	3911 B	2200 B	1408 B	891 D	561 D	376 D	264 D	192 D	145 D	111 D	88 D	70 D	57 D	--	--	--	--
5 1/2	7 1/2	14.3	5971 S	3438 B	2200 B	1528 B	1096 D	734 D	516 D	376 D	282 D	218 D	171 D	137 D	111 D	92 D	77 D	64 D	--
5 1/2	9	17.2	6000 *	4950 B	3168 B	2200 B	1616 B	1238 B	891 D	650 D	488 D	376 D	296 D	237 D	192 D	159 D	132 D	111 D	95 D
5 1/2	10 1/2	20.1	6000 *	6000 *	4312 B	2994 B	2200 B	1684 B	1331 B	1032 D	775 D	597 D	470 D	376 D	306 D	252 D	210 D	177 D	150 D
5 1/2	12	22.9	6000 *	6000 *	5573 S	3911 B	2873 B	2200 B	1738 B	1408 B	1157 D	891 D	701 D	561 D	456 D	376 D	313 D	264 D	225 D
5 1/2	13 1/2	25.8	6000 *	6000 *	6000 *	4950 B	3637 B	2784 B	2200 B	1782 B	1473 B	1238 B	998 D	799 D	650 D	535 D	446 D	376 D	320 D
5 1/2	15	28.6	6000 *	6000 *	6000 *	5971 S	4490 B	3438 B	2716 B	2200 B	1818 B	1528 B	1302 B	1096 D	891 D	734 D	612 D	516 D	439 D
5 1/2	16 1/2	31.5	6000 *	6000 *	6000 *	6000 *	5409 S	4159 B	3286 B	2662 B	2200 B	1849 B	1575 B	1358 B	1177 B	977 D	815 D	686 D	584 D
5 1/2	18	34.4	6000 *	6000 *	6000 *	6000 *	6000 *	4950 B	3911 B	3168 B	2618 B	2200 B	1875 B	1605 B	1388 B	1212 B	1058 D	891 D	758 D
5 1/2	19 1/2	37.2	6000 *	6000 *	6000 *	6000 *	6000 *	5720 S	4590 B	3718 B	3073 B	2582 B	2183 B	1869 B	1617 B	1412 B	1243 B	1102 B	963 D
5 1/2	21	40.1	6000 *	6000 *	6000 *	6000 *	6000 *	6000 *	5320 S	4312 B	3564 B	2973 B	2513 B	2151 B	1861 B	1625 B	1431 B	1269 B	1133 B
5 1/2	22 1/2	43.0	6000 *	6000 *	6000 *	6000 *	6000 *	6000 *	5971 S	4950 B	4069 B	3390 B	2865 B	2452 B	2122 B	1853 B	1631 B	1447 B	1291 B
5 1/2	24	45.8	6000 *	6000 *	6000 *	6000 *	6000 *	6000 *	6000 *	5573 S	4600 B	3832 B	3239 B	2772 B	2398 B	2094 B	1844 B	1635 B	1460 B
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0	0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE SPECIFICATIONS: This table applies to straight, simply supported glued laminated timber beams under dry conditions of use.
Beams must be laterally supported at the top along the length of the beam and at the top and bottom at the ends.
The load carrying capacities tabulated are for total load including the weight of the member.
BEAM WEIGHT: 50.0 pounds per cubic foot was used to determine beam weight per lineal foot shown in the table.
DESIGN VALUE MODIFICATIONS: The allowable stress in bending, F_{bx}, has been adjusted by the AITC volume factor, C_V.
For determination of load carrying capacities governed by shear, loads within a distance "d" (the depth of the beam) from the ends have been neglected.
DEFLECTION LIMITS: For floor beams, deflection is limited to span/360 for live load. Live load of 80% of total load is used.
CONTROLLING VALUES: Values marked with a D are controlled by deflection, B are bending controlled, and S are shear controlled.
SPAN: Span is defined as the length from centerline to centerline of bearing. This span is the length used in standard engineering equations to calculate deflection, bending and shear.
* The values have been limited to reasonable capacities. Engineering calculations may allow for greater capacities.

While these capacity tables have been prepared in accordance with recognized engineering principles and are based on the most accurate and reliable technical data available, these tables should not be used or relied upon for any general or specific application without competent professional examination and verification of their accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect.

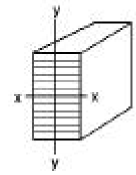
May, 2001

TABLE 16F-E10 Full Width Headers

WRONG SPECIES

THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION

Structural Glued Laminated Timber



FLOOR BEAMS
FLOOR LIVE LOAD

Simple Span Beams
For Preliminary Design Purposes
Lamination thickness: 1-1/2 in.

F_{bx}	F_{vx}	E_x	C_D	Deflection limit
1600 psi	190 psi	1.4 million psi	1.00	Span / 480

FLOOR LOAD FACTOR = 0.80

BEAM SIZE		BEAM	BEAM CAPACITY, UNIFORM LOAD w, plf															
Width	Depth	WEIGHT	SPAN, ft															
b, in.	d, in.	plf	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
3 1/2	4 1/2	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3 1/2	6	7.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3 1/2	7 1/2	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3 1/2	9	10.9	52 D	45 D	39 D	--	--	--	--	--	--	--	--	--	--	--	--	--
3 1/2	10 1/2	12.8	82 D	71 D	62 D	54 D	47 D	42 D	37 D	--	--	--	--	--	--	--	--	--
3 1/2	12	14.6	122 D	106 D	92 D	81 D	71 D	63 D	56 D	50 D	45 D	40 D	36 D	--	--	--	--	--
3 1/2	13 1/2	16.4	174 D	151 D	131 D	115 D	101 D	89 D	79 D	71 D	64 D	57 D	52 D	47 D	43 D	39 D	--	--
3 1/2	15	18.2	239 D	207 D	180 D	157 D	138 D	122 D	109 D	97 D	87 D	78 D	71 D	64 D	58 D	53 D	49 D	45 D
3 1/2	16 1/2	20.1	318 D	275 D	239 D	209 D	184 D	163 D	145 D	129 D	116 D	104 D	94 D	86 D	78 D	71 D	65 D	59 D
3 1/2	18	21.9	413 D	357 D	311 D	272 D	239 D	212 D	188 D	168 D	151 D	136 D	122 D	111 D	101 D	92 D	84 D	77 D
5 1/2	4 1/2	8.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5 1/2	6	11.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5 1/2	7 1/2	14.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5 1/2	9	17.2	81 D	70 D	61 D	--	--	--	--	--	--	--	--	--	--	--	--	--
5 1/2	10 1/2	20.1	129 D	111 D	97 D	85 D	75 D	66 D	59 D	--	--	--	--	--	--	--	--	--
5 1/2	12	22.9	192 D	166 D	145 D	127 D	111 D	99 D	88 D	78 D	70 D	63 D	57 D	--	--	--	--	--
5 1/2	13 1/2	25.8	274 D	237 D	206 D	180 D	159 D	140 D	125 D	111 D	100 D	90 D	81 D	74 D	67 D	61 D	--	--
5 1/2	15	28.6	376 D	325 D	282 D	247 D	218 D	192 D	171 D	153 D	137 D	123 D	111 D	101 D	92 D	84 D	77 D	70 D
5 1/2	16 1/2	31.5	500 D	432 D	376 D	329 D	290 D	256 D	228 D	203 D	182 D	164 D	148 D	134 D	122 D	111 D	102 D	93 D
5 1/2	18	34.4	650 D	561 D	488 D	427 D	376 D	333 D	296 D	264 D	237 D	213 D	192 D	174 D	159 D	145 D	132 D	121 D
5 1/2	19 1/2	37.2	826 D	714 D	621 D	543 D	478 D	423 D	376 D	336 D	301 D	271 D	245 D	222 D	202 D	184 D	168 D	154 D
5 1/2	21	40.1	1017 B	891 D	775 D	678 D	597 D	528 D	470 D	419 D	376 D	338 D	306 D	277 D	252 D	230 D	210 D	192 D
5 1/2	22 1/2	43.0	1160 B	1047 B	949 B	834 D	734 D	650 D	578 D	516 D	462 D	416 D	376 D	341 D	310 D	282 D	258 D	237 D
5 1/2	24	45.8	1311 B	1183 B	1073 B	977 B	891 D	788 D	701 D	626 D	561 D	505 D	456 D	414 D	376 D	343 D	313 D	287 D
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