

FLOOR JOIST SPANS

City of Omaha – effective 10-3-07

FLOOR JOISTS		TABLE R502.3.1(2)											
Size		2"X 6"			2"X 8"			2"X 10"			2"X 12"		
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	10-3	9-4	8-1	13-6	12-3	10-3	17-3	15-5	12-7	20-7	17-10	14-7
SPF	#2	10-3	9-4	8-1	13-6	12-3	10-3	17-3	15-5	12-7	20-7	17-10	14-7
HEM FIR	#1	10-6	9-6	8-4	13-10	12-7	10-9	17-8	16-0	13-1	21-6	18-7	15-2
HEM FIR	#2	10-0	9-1	7-11	13-2	12-0	10-2	16-10	15-2	12-5	20-4	17-7	14-4
DOUG FIR	#1	10-11	9-11	8-8	14-5	13-1	11-0	18-5	16-5	13-5	22-0	19-1	15-7
DOUG FIR	#2	10-9	9-9	8-1	14-2	12-7	10-3	17-9	15-5	12-7	20-7	17-10	14-7
SYP	#1	10-11	9-11	8-8	14-5	13-1	11-5	18-5	16-9	14-7	22-5	20-4	17-5
SYP	#2	10-9	9-9	8-6	14-2	12-10	11-0	18-0	16-1	13-1	21-9	18-10	15-5
CEDAR	#1	9-6	8-7	7-6	12-6	11-4	9-11	15-11	14-6	12-8	19-4	17-7	15-4
CEDAR	#2	9-2	8-4	7-3	12-1	11-0	9-7	15-5	14-0	12-3	18-9	17-0	14-11

CEILING JOIST SPANS

CEILING JOISTS (with no storage)		TABLE R802.4(1)											
Size		2"X 4"			2"X 6"			2"X 8"			2"X 10"		
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	11-10	10-9	9-5	18-8	16-11	14-9	24-7	22-4	18-9	a	a	22-11
SPF	#2	11-10	10-9	9-5	18-8	16-11	14-9	24-7	22-4	18-9	a	a	22-11
HEM FIR	#1	12-2	11-0	9-8	19-1	17-4	15-2	25-2	22-10	19-7	a	a	23-11
HEM FIR	#2	11-7	10-6	9-2	18-2	16-6	14-5	24-0	21-9	18-6	a	a	22-7
DOUG FIR	#1	12-8	11-6	10-0	19-11	18-1	15-9	a	23-10	20-1	a	a	24-6
DOUG FIR	#2	12-5	11-3	9-10	19-6	17-8	14-10	25-8	23-0	18-9	a	a	22-11
SYP	#1	12-8	11-6	10-0	19-11	18-1	15-9	a	23-1	20-10	a	a	a
SYP	#2	12-5	11-3	9-10	19-6	17-8	15-6	25-8	23-4	20-1	a	a	23-11

a. Span exceeds 26 feet in length.

CEILING JOISTS (with limited storage)		TABLE R802.4(2)											
Size		2"X 4"			2"X 6"			2"X 8"			2"X 10"		
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	9-5	8-7	7-2	14-9	12-10	10-6	18-9	16-3	13-3	22-11	19-10	16-3
SPF	#2	9-5	8-7	7-2	14-9	12-10	10-6	18-9	16-3	13-3	22-11	19-10	16-3
HEM FIR	#1	9-8	8-9	7-6	15-2	13-5	10-11	19-7	16-10	13-10	23-11	20-8	16-11
HEM FIR	#2	9-2	8-4	7-1	14-5	12-8	10-4	18-6	16-0	13-1	22-7	19-7	16-0
DOUG FIR	#1	10-0	9-1	7-8	15-9	13-9	11-2	20-1	17-5	14-2	24-6	21-3	17-4
DOUG FIR	#2	9-10	8-9	7-2	14-10	12-10	10-6	18-9	16-3	13-3	22-11	19-10	16-3
SYP	#1	10-0	9-1	8-0	15-9	14-4	12-6	20-10	18-11	15-10	a	23-1	18-10
SYP	#2	9-10	8-11	7-8	15-6	13-6	11-0	20-1	17-5	14-2	23-11	20-9	16-11

a. Span exceeds 26 feet in length.

PROPERTIES

Species	SPF		HEM FIR		DOUG FIR		SYP		CEDAR	
Grade	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2
F _b = *	1010	890	1265	980	1380	1035	1495	1210	835	805
E =	1.2	1.1	1.5	1.3	1.8	1.6	1.7	1.6	1.0	1.0

Property information furnished by Western Wood Products Association and the Southern Pine Council.

* Design values given are based on repetitive member use.

RAFTER SPANS

City of Omaha – effective 10-3-07

RAFTERS (3:12 or less - no ceiling attached) TABLE R802.5.1(3)

Size		2"X 6"			2"X 8"			2"X 10"			2"X 12"		
		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	13-9	11-11	9-9	17-5	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
SPF	#2	13-9	11-11	9-9	17-5	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
HEM FIR	#1	14-4	12-5	10-2	18-2	15-9	12-10	22-2	19-3	15-8	25-9	22-3	18-2
HEM FIR	#2	13-7	11-9	9-7	17-2	14-11	12-2	21-0	18-2	14-10	24-4	21-1	17-3
DOUG FIR	#1	14-9	12-9	10-5	18-8	16-2	13-2	22-9	19-9	16-1	b	22-10	18-8
DOUG FIR	#2	13-9	11-11	9-9	17-5	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
SYP	#1	15-2	13-9	11-9	20-0	18-1	14-9	24-9	21-5	17-6	b	25-7	20-11
SYP	#2	14-5	12-6	10-2	18-8	16-2	13-2	22-3	19-3	15-9	b	22-7	18-5

b. Span exceeds 26 feet in length.

RAFTERS (3:12 or less – ceiling attached) TABLE R802.5.1(5)

Size		2"X 6"			2"X 8"			2"X 10"			2"X 12"		
		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	12-11	11-9	9-9	17-0	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
SPF	#2	12-11	11-9	9-9	17-0	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
HEM FIR	#1	13-3	12-0	10-2	17-5	15-9	12-10	22-2	19-3	15-8	25-9	22-3	18-2
HEM FIR	#2	12-7	11-5	9-7	16-7	14-11	12-2	21-0	18-2	14-10	24-4	21-1	17-3
DOUG FIR	#1	13-9	12-6	10-5	18-2	16-2	13-2	22-9	19-9	16-1	b	22-10	18-8
DOUG FIR	#2	13-6	11-11	9-9	17-5	15-1	12-4	21-4	18-5	15-1	24-8	21-5	17-6
SYP	#1	13-9	12-6	10-11	18-2	16-6	14-5	23-2	21-1	17-6	b	25-7	20-11
SYP	#2	13-6	12-3	10-2	17-10	16-2	13-2	22-3	19-3	15-9	b	22-7	18-5

b. Span exceeds 26 feet in length.

RAFTERS (greater than 3:12 – no ceiling attached) TABLE R802.5.1(1)

Size		2"X 6"			2"X 8"			2"X 10"			2"X 12"		
		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	16-3	14-4	11-9	21-0	18-2	14-10	25-8	22-3	18-2	b	25-9	21-0
SPF	#2	16-3	14-4	11-9	21-0	18-2	14-10	25-8	22-3	18-2	b	25-9	21-0
HEM FIR	#1	16-8	14-11	12-3	21-10	18-11	15-6	b	23-2	18-11	b	b	21-11
HEM FIR	#2	15-11	14-2	11-7	20-8	17-11	14-8	25-3	21-11	17-10	b	25-5	20-9
DOUG FIR	#1	17-4	15-4	12-6	22-5	19-5	15-10	b	23-9	19-5	b	b	22-6
DOUG FIR	#2	16-7	14-4	11-9	21-0	18-2	14-10	25-8	22-3	18-2	b	25-9	21-0
SYP	#1	17-4	15-9	13-9	22-11	20-10	17-9	b	25-10	21-1	b	b	25-2
SYP	#2	17-0	15-1	12-3	22-5	19-5	15-10	b	23-2	18-11	b	b	22-2

b. Span exceeds 26 feet in length.

RAFTERS (greater than 3:12 – ceiling attached) TABLE R802.5.1(2)

Size		2"X 6"			2"X 8"			2"X 10"			2"X 12"		
		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
Spacing		12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SPF	#1	14-9	13-5	11-9	19-6	17-9	14-10	24-10	22-3	18-2	b	25-9	21-0
SPF	#2	14-9	13-5	11-9	19-6	17-9	14-10	24-10	22-3	18-2	b	25-9	21-0
HEM FIR	#1	15-2	13-9	12-0	19-11	18-1	15-6	25-5	23-1	18-11	b	b	21-11
HEM FIR	#2	14-5	13-1	11-5	19-0	17-3	14-8	24-3	21-11	17-10	b	25-5	20-9
DOUG FIR	#1	15-9	14-4	12-6	20-10	18-11	15-10	b	23-9	19-5	b	b	22-6
DOUG FIR	#2	15-6	14-1	11-9	20-5	18-2	14-10	25-8	22-3	18-2	b	25-9	21-0
SYP	#1	15-9	14-4	12-6	20-10	18-11	16-6	b	24-1	21-1	b	b	25-2
SYP	#2	15-6	14-1	12-3	20-5	18-6	15-10	b	23-2	18-11	b	b	22-2

b. Span exceeds 26 feet in length.