

Rev: 580006
User: KW-0602844, Ver 5.8.0, 1-Dec-2003
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Timber Beam & Joist

Jang.ecw:Calculations

Description RAFTERS AND BEAMS

Timber Member Information Code Ref: 1997/2001 NDS, 2000/2003 IBC, 2003 NFPA 5000. Base allowables are user defined

	rafter	B1	B2	B3	B4
Timber Section	2x6	4x12	4x8	4x10	6x16
Beam Width	1.500	3.500	3.500	3.500	5.500
Beam Depth	5.500	11.250	7.250	9.250	15.500
Le: Unbraced Length	0.00	0.00	0.00	0.00	0.00
Timber Grade	Douglas Fir - Larch, No.2	Douglas Fir - Larch, No.2	Douglas Fir - Larch, No.1	Douglas Fir - Larch, No.1	Douglas Fir - Larch, No.1
Fb - Basic Allow	875.0	875.0	1,000.0	1,000.0	1,350.0
Fv - Basic Allow	95.0	95.0	95.0	95.0	85.0
Elastic Modulus	1,600.0	1,600.0	1,700.0	1,700.0	1,600.0
Load Duration Factor	1.250	1.250	1.250	1.250	1.250
Member Type	Sawn	Sawn	Sawn	Sawn	Sawn
Repetitive Status	Repetitive	No	No	No	No

Center Span Data

	ft				
Span	12.00	16.00	12.50	13.50	18.50
Dead Load	#/ft 24.60	#/ft 86.00	#/ft 37.00	#/ft 62.00	#/ft 172.00
Live Load	#/ft 32.00	#/ft 112.00	#/ft 48.00	#/ft 80.00	#/ft 224.00

Results Ratio =

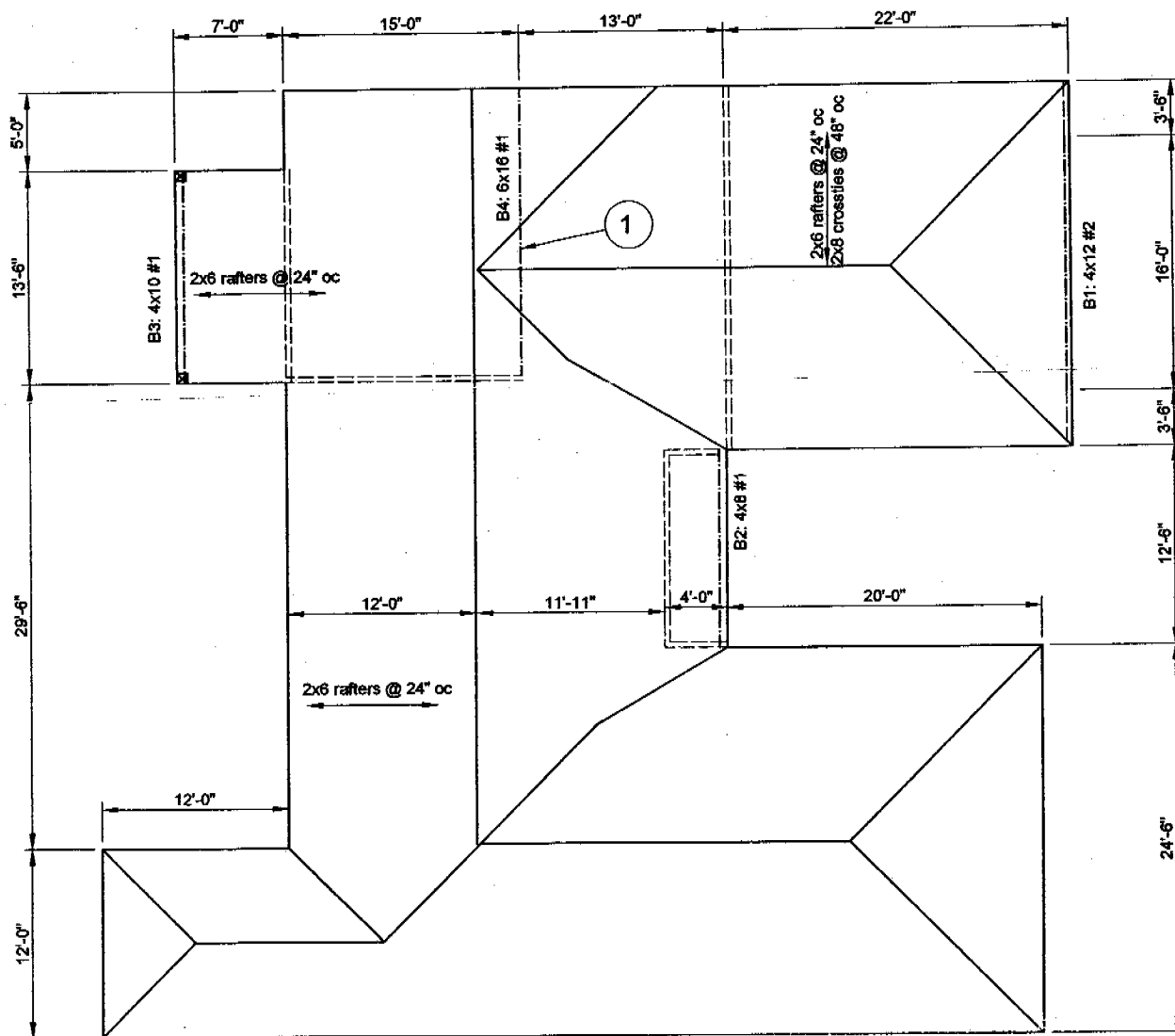
		0.9887	0.8560	0.3998	0.5185	0.5628
Mmax @ Center @ X =	in-k ft	12.23	76.03	19.92	38.82	203.30
		6.00	8.00	6.25	6.75	9.25
fb : Actual	psi	1,616.6	1,029.9	649.7	777.8	923.1
Fb : Allowable	psi	1,635.2	1,203.1	1,625.0	1,500.0	1,640.2
		Bending OK	Bending OK	Bending OK	Bending OK	Bending OK
fv : Actual	psi	57.3	53.6	28.4	39.4	55.7
Fv : Allowable	psi	118.8	118.8	118.8	118.8	106.3
		Shear OK	Shear OK	Shear OK	Shear OK	Shear OK

Reactions

		lbs				
@ Left End	DL	147.60	688.00	231.25	418.50	1,591.00
	LL	192.00	896.00	300.00	540.00	2,072.00
	Max. DL+LL	339.60	1,584.00	531.25	958.50	3,663.00
@ Right End	DL	147.60	688.00	231.25	418.50	1,591.00
	LL	192.00	896.00	300.00	540.00	2,072.00
	Max. DL+LL	339.60	1,584.00	531.25	958.50	3,663.00

Deflections Ratio OK Deflection OK Deflection OK Deflection OK Deflection OK

Center DL Defl	in	-0.345	-0.191	-0.108	-0.118	-0.166
L/Defl Ratio		417.5	1,006.0	1,394.5	1,372.1	1,337.4
Center LL Defl	in	-0.449	-0.249	-0.140	-0.152	-0.216
L/Defl Ratio		320.9	772.5	1,075.0	1,063.4	1,026.9
Center Total Defl	in	-0.794	-0.439	-0.247	-0.270	-0.382
Location	ft	6.000	8.000	6.250	6.750	9.250
L/Defl Ratio		181.5	437.0	607.0	599.1	580.9



FRAMING NOTES:

- 1. Existing deflection of 1 (one) inch in existing beam.

NOTES:

- A. This is a reroof project. The new roofing material shall be a Light Weight Concrete Tile. The tile shall weigh less than or equal to 7.3 psf.
- B. All framing members including rafters, purlins, joists and beams are existing unless otherwise noted in the framing notes above.
- C. All rafters are 2x6 DF#2 and hips and valleys are 2x8 DF#2 unless otherwise noted.
- D. All existing rafter, hips, valleys, rafter ties, and purlins are braced per UBC Section 2320.1 "Roof and Ceiling Framing" unless otherwise shown.
- E. All structural wood members that were observed appear to be in sound condition and without structural defect.



1 ROOF PLAN - JANG
Not to Scale