

CITY OF SACRAMENTO

Permit No: 9811469

1231 I Street, Sacramento, CA 95814

Insp Area: 2

Site Address: 236 DELTA OAKS WY SAC

Sub-Type: RES

Parcel No: 0310290003

Housing (Y/N): N

CONTRACTOR

LESS CO
PO BOX 41863
SACRAMENTO CA 95841

OWNER

CHIKASAWA ROBERT T/DIANE
236 DELTA OAKS WY
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: REROOF DURALITE 33SQS 600#

CONSTRUCTION LENDING AGENCY: I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name Lender's Address

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class: 39 License Number: 385288 Date: 12-7-98 Contractor Signature: [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00);

I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. B & PC for this reason: DEC 07 1998

Date Owner Signature

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date: 12-7-98 Applicant/Agent Signature: [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier STATE FUND Policy Number 1353545-98 Exp Date 07/01/1999

(This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date: 12-7-98 Applicant Signature: [Signature]

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.

Chikasawa

4701 Lakeside Way
Fair Oaks, CA 95628

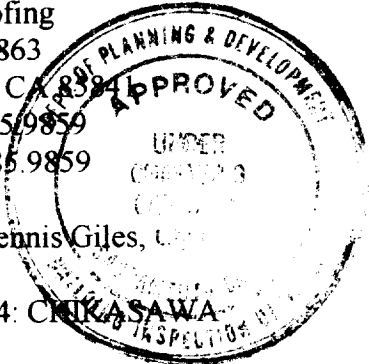
TEL: 916.961.3960
FAX: 916.961.3960

November 24, 1998

Less-Co Roofing
P.O. Box 41863
Sacramento, CA 95834
TEL: 916.485.9859
FAX: 916.485.9859

Attn.: Mr. Dennis Giles, City Engineer

re: Job 98324: CHIKASAWA



This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations without the written permission of the City Engineer. Any violation of any City Ordinance or State Law.



Subject: Structural Investigation Report of the Roof for the Residence located at 236 Delta Oaks Way, Sacramento, CA 95831.

As requested by Mr. Dennis Giles, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site November 24, 1998. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report is based on the 1994 Uniform Building Code.

The following is based on visual observations with no subsurface investigation being made.

DESCRIPTION:

Type of Facility: Residence.
Year Built: Estimated 1970's vintage.
Occupancy: Residential.
No. of Stories: One.
Dimensions: Approximately 2000 square feet with a first story plate height of 8 feet.

CONSTRUCTION:

Roof:
The roof covering will consist of Monier Light Weight Concrete Tile over 1/2" solid sheathing. The living and garage areas are framed with wood pre-engineered trusses spaced at 24" on center except for the vaulted ceiling areas. The vaulted ceiling is constructed of 2x10 rafters spaced at 24" on center supported mid-span by a 6x beam.

CONCLUSIONS:

Roof:
The living and garage areas have sufficient structural capacity for the applied live and dead loads.

Chikasawa

4701 Lakeside Way
Fair Oaks, CA 95628

TEL: 916.961.3960
FAX: 916.961.3960

RECOMMENDATIONS:

None.

It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls which are load bearing or distributing roof strut loads. These cracks are a natural occurrence as the existing structure re-distributes the new roof weight. They are cosmetic in nature and are not an indication of a structural hazard or failure.

It shall be noted that some deflection of the rafters may be evident after installation of the tile. The existing roof framing has deflected but this may not be readily evident due to the uneven nature of the existing roofing material. Concrete tile is a very consistent and uniform product and when installed in an even plane, even small deflections can become apparent. This is only a cosmetic issue and not a structural concern.

The inspection consisted of visual observation only, made solely to determine the structural capacity of the existing roof. Analysis does not determine any effects on the overall structure under lateral forces or effects on the foundation unless specifically noted in the calculations and in this document. No warranties, expressed or implied, are made or intended in conjunction with this report. The inspection was made only to the portions that were accessible. The specific items noted were those that were observable and there may be defects which are not observable, or are hidden by architectural and structural materials.

If you have any questions on the above, do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Zaçher', written over a vertical line.

Paul Zaçher, P.E., S.E.
file

DESIGN LOADING:

Roof Pitch	4	in 12
Pitch Adjustment Factor	1.05	

LOCATION: ROOF

<u>MATERIAL</u>	<u>WEIGHT</u>	
Monier Duralite	6.00	psf
Roofing felt	0.30	psf
1x4 skip sht'g	1.09	psf
1/2" OSB/ plywood	1.50	psf
2x6 rafters @ 24" oc	<u>1.00</u>	psf
Load	9.9	psf
Roof Pitch Adjustment	<u>0.54</u>	psf
Total Load	10.4	psf

LOCATION: VAULT

<u>MATERIAL</u>	<u>WEIGHT</u>	
Monier Duralite	6.00	psf
Roofing felt	0.30	psf
1/2" OSB/ plywood	1.50	psf
1x4 skip sht'g	1.09	psf
2x6 rafters @ 24" oc	1.00	psf
Batt/blown insul	0.50	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	12.9	psf
Roof Pitch Adjustment	<u>0.70</u>	psf
Total Load	13.6	psf

LOCATION: TOP CHORD

<u>MATERIAL</u>	<u>WEIGHT</u>	
Monier Duralite	6.00	psf
Roofing felt	0.30	psf
1/2" OSB/ plywood	1.50	psf
1x4 skip sht'g	1.09	psf
2x4 truss @ 24" oc	<u>1.28</u>	psf
Load	10.2	psf
Roof Pitch Adjustment	<u>0.55</u>	psf
Total Load	10.7	psf

LOCATION: BOTTOM CHORD

<u>MATERIAL</u>	<u>WEIGHT</u>	
Batt/blown insul	0.50	psf
2x4 truss @ 24" oc	0.64	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	3.6	psf

PAUL ZACHER - STRUCTURAL ENGINEERS
 4701 LAKESIDE WAY
 FAIR OAKS, CA 95628
 TEL: 916.961.3960
 FAX: 916.961.3960

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 7:01PM, 24 NOV 98

Rev. 510001

Timber Beam & Joist

Description RAFTERS AND BEAMS

Timber Member Information

		2x6	2x10	6x12
Timber Section		2x6	2x10	6x12
Beam Width	in	1.500	1.500	5.500
Beam Depth	in	5.500	9.250	11.500
Le: Unbraced Length	ft	2.00	2.00	2.00
Timber Grade		Douglas Fir - Larch, Douglas Fir - Larch, Douglas Fir - Larch		
Fb - Basic Allow	psi	875.0	875.0	1,350.0
Fv - Basic Allow	psi	95.0	95.0	85.0
Elastic Modulus	ksi	1,600.0	1,600.0	1,600.0
Load Duration Factor		1.250	1.250	1.250
Member Type		Sawn	Sawn	Sawn
Repetitive Status		Repetitive	Repetitive	No

Center Span Data

		2x6	2x10	6x12
Span	ft	12.00	12.00	13.50
Dead Load	#/ft	20.80	27.20	163.00
Live Load	#/ft	32.00	32.00	192.00

Results

Ratio = 0.9383 0.4502 0.4759

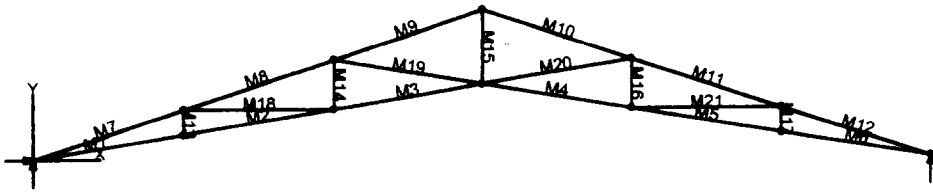
Mmax @ Center	in-k	11.40	12.79	97.05
@ X =	ft	6.00	6.00	6.75
fb : Actual	psi	1,508.1	597.8	800.5
Fb : Allowable	psi	1,607.3	1,327.8	1,682.1
		Bending OK	Bending OK	Bending OK
fv : Actual	psi	53.5	33.5	49.1
Fv : Allowable	psi	118.8	118.8	106.3
		Shear OK	Shear OK	Shear OK

Reactions

@ Left End	DL	lbs	124.80	163.20	1,100.25
	LL	lbs	192.00	192.00	1,296.00
	Max. DL+LL	lbs	316.80	355.20	2,396.25
@ Right End	DL	lbs	124.80	163.20	1,100.25
	LL	lbs	192.00	192.00	1,296.00
	Max. DL+LL	lbs	316.80	355.20	2,396.25

Deflections

Center DL Defl	in	-0.292	-0.080	-0.109
L/Defl Ratio		493.8	1,796.2	1,483.3
Center LL Defl	in	-0.449	-0.094	-0.129
L/Defl Ratio		320.9	1,526.8	1,259.2
Center Total Defl	in	-0.740	-0.174	-0.238
Location	ft	6.000	6.000	6.750
L/Defl Ratio		194.5	825.3	681.0



VisualAnalysis 3.12.c Report

November 24, 1998 7:41 PM

Project:

File: C:\Paul\PK&ASSOC\Roofing\MISCELLANEOUS\Less-Co\Chikasawa8234\truss1.VAP

Engineer: P.K. ZACHER, S.E.

Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Nodes

Node	X ft	Y ft	Fix	DX Fix	DY Fix	RZ Fix
N1	0.00	0.00	Yes	Yes	No	
N2	5.00	0.83	No	No		
N3	25.00	0.83	"	"		
N4	20.00	1.67	"	"		
N5	10.00	1.67	"	"		
N6	5.00	1.67	"	"		
N7	25.00	1.67	"	"		
N8	15.00	2.50	"	"		
N9	10.00	3.33	"	"		
N10	20.00	3.33	"	"		
N11	15.00	5.00	"	"		
N12	30.00	0.00	"	Yes		

Spring Elements

This item is empty. Check the selection state, or report properties.

Member Elements

Member	Section	Material	Length ft	Weight lbs	Theta deg
M1	SS2x4	Wood	5.07	7.48	0.00
M2	"	"	5.07	7.48	0.00
M3	"	"	5.07	7.48	0.00
M4	"	"	5.07	7.48	0.00
M5	"	"	5.07	7.48	0.00
M6	"	"	5.07	7.48	0.00
M7	"	"	5.27	7.78	0.00
M8	"	"	5.27	7.77	0.00
M9	"	"	5.27	7.78	0.00
M10	"	"	5.27	7.78	0.00
M11	"	"	5.27	7.77	0.00
M12	"	"	5.27	7.78	0.00
M13	"	"	0.84	1.24	0.00
M14	"	"	1.66	2.45	0.00
M15	"	"	2.50	3.69	0.00
M16	"	"	1.66	2.45	0.00
M17	"	"	0.84	1.24	0.00
M18	"	"	5.00	7.38	0.00
M19	"	"	5.07	7.48	0.00
M20	"	"	5.07	7.48	0.00
M21	"	"	5.00	7.38	0.00

Section Properties

Category	Section	Ax in ²	Iz in ⁴	Sy+ in ³	Sy- in ³
Wood Sha	SS2x4	5.25	5.36	3.06	3.06

Material Properties

Material	Strength <i>ksi</i>	Elasticity <i>ksi</i>	Poisson	Density <i>lb/ft^3</i>	Therm. <i>/F</i>
Wood	-NA-	1700.00	0.36	40.47	0.00

Plate Elements

This item is empty. Check the selection state, or report properties.

VisualAnalysis 3.12.c Report

November 24, 1998 7:41 PM

Project:

File: C:\Paul\PK&ASSOC\Roofing\MISCELLANEOUS\Less-Co\Chikasawa8234\truss1.VAP
 Engineer: P.K. ZACHER, S.E.
 Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Load Cases

Load Case	Strength Service Results		
1) Service Case 1	Yes	Yes	None
2) Service Case 2	"	"	"
3) Equation Case 1	"	"	1st Ord

Service Load Cases

Load Case	Load Source	Self Weight	Loads
Service Case 1	Dead loads	None	
Service Case 2	Roof Live 1	"	

Load Combination Summary

Equation Case: Equation Case 1
 Combination: +1D+1L+1Lr+1R+1W+1S+1E+1H+1F+1TS+1T+1TC+1I+1U+1LE
Contributing Cases & Source
 Service Case 1 (Dead loads)
 Service Case 2 (Roof Live loads)

Equation Case Combinations

Load Case	Cases Equation	
Equation Case 1	0.00	0.00

Factored Case Combinations

This item is empty. Check the selection state, or report properties.

Nodal Loads

This item is empty. Check the selection state, or report properties.

Member Point Loads

This item is empty. Check the selection state, or report properties.

Member Uniform Loads

Load Case	Member	Direction	Offset ft	End Off ft	Magnitude
Service Case 1	M1	DY proj.	0.00	5.07	-0.01 K/ft
"	M2	"	0.00	5.07	-0.01 K/ft
"	M3	"	0.00	5.07	-0.01 K/ft
"	M4	"	0.00	5.07	-0.01 K/ft
"	M5	"	0.00	5.07	-0.01 K/ft

"	M6	"	0.00	5.07	-0.01 K/ft
"	M7	"	0.00	5.27	-0.02 K/ft
"	M8	"	0.00	5.27	-0.02 K/ft
"	M9	"	0.00	5.27	-0.02 K/ft
"	M10	"	0.00	5.27	-0.02 K/ft
"	M11	"	0.00	5.27	-0.02 K/ft
"	M12	"	0.00	5.27	-0.02 K/ft
Service Case 2	M7	"	0.00	5.27	-0.03 K/ft
"	M8	"	0.00	5.27	-0.03 K/ft
"	M9	"	0.00	5.27	-0.03 K/ft
"	M10	"	0.00	5.27	-0.03 K/ft
"	M11	"	0.00	5.27	-0.03 K/ft
"	M12	"	0.00	5.27	-0.03 K/ft

Member Linear Loads

This item is empty. Check the selection state, or report properties.

Member Temperature Changes

This item is empty. Check the selection state, or report properties.

Member Gradient Temperatures

This item is empty. Check the selection state, or report properties.

VisualAnalysis 3.12.c Report

November 24, 1998 7:41 PM

Project:

File: C:\Paul\PK&ASSOC\Roofing\MISCELLANEOUS\Less-Co\Chikasawa8234\truss1.VAP

Engineer: P.K. ZACHER, S.E.

Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Load Cases

Load Case	Strength	Service	Results
1) Service Case 1	Yes	Yes	None
2) Service Case 2	"	"	"
3) Equation Case 1	"	"	1st Ord

Member Extreme Results

Member	Fx(lc) K	Fy(lc) K	Mz(lc) K-ft	fc max(lc) ksi	fc min(lc) ksi	Dx(lc) in	Dy(lc) in
M1	4.28 (3)	0.01 (3)	0.05 (3)	1.00 (3)	0.12 (3)	0.00 (3)	-0.80 (3)
"	4.28 (3)	0.04 (3)	0.18 (3)	1.51 (3)	0.63 (3)	0.03 (3)	0.00 (3)
M2	4.32 (3)	-0.05 (3)	-0.03 (3)	0.83 (3)	0.35 (3)	0.03 (3)	-1.02 (3)
"	4.32 (3)	-0.01 (3)	0.12 (3)	1.30 (3)	0.82 (3)	0.06 (3)	-0.80 (3)
M3	3.71 (3)	-0.03 (3)	-0.02 (3)	0.71 (3)	0.55 (3)	0.06 (3)	-1.06 (3)
"	3.72 (3)	0.01 (3)	0.04 (3)	0.87 (3)	0.71 (3)	0.08 (3)	-1.02 (3)
M4	3.71 (3)	-0.01 (3)	-0.02 (3)	0.71 (3)	0.55 (3)	0.42 (3)	-0.97 (3)
"	3.72 (3)	0.03 (3)	0.04 (3)	0.87 (3)	0.71 (3)	0.45 (3)	-0.93 (3)
M5	4.32 (3)	0.01 (3)	-0.03 (3)	0.83 (3)	0.35 (3)	0.45 (3)	-0.93 (3)
"	4.32 (3)	0.05 (3)	0.12 (3)	1.30 (3)	0.82 (3)	0.48 (3)	-0.71 (3)
M6	4.28 (3)	-0.04 (3)	0.05 (3)	1.00 (3)	0.12 (3)	0.48 (3)	-0.71 (3)
"	4.28 (3)	-0.01 (3)	0.18 (3)	1.51 (3)	0.63 (3)	0.51 (3)	0.08 (3)
M7	-4.51 (3)	-0.10 (3)	-0.05 (3)	-0.85 (3)	-1.60 (3)	-0.03 (3)	-0.81 (3)
"	-4.42 (3)	0.15 (3)	0.19 (3)	-0.10 (3)	-0.86 (3)	0.00 (3)	0.00 (3)
M8	-3.99 (3)	-0.15 (3)	-0.11 (3)	-0.75 (3)	-1.22 (3)	-0.06 (3)	-1.03 (3)
"	-3.91 (3)	0.11 (3)	0.12 (3)	-0.29 (3)	-0.75 (3)	-0.03 (3)	-0.81 (3)
M9	-2.99 (3)	-0.14 (3)	-0.12 (3)	-0.55 (3)	-1.04 (3)	-0.08 (3)	-1.07 (3)
"	-2.91 (3)	0.11 (3)	0.08 (3)	-0.07 (3)	-0.57 (3)	-0.06 (3)	-1.03 (3)
M10	-2.99 (3)	-0.11 (3)	-0.12 (3)	-0.55 (3)	-1.04 (3)	0.55 (3)	-0.91 (3)
"	-2.91 (3)	0.14 (3)	0.08 (3)	-0.07 (3)	-0.57 (3)	0.57 (3)	-0.86 (3)
M11	-3.99 (3)	-0.11 (3)	-0.11 (3)	-0.75 (3)	-1.22 (3)	0.52 (3)	-0.86 (3)
"	-3.91 (3)	0.15 (3)	0.12 (3)	-0.29 (3)	-0.75 (3)	0.54 (3)	-0.65 (3)
M12	-4.51 (3)	-0.15 (3)	-0.05 (3)	-0.85 (3)	-1.60 (3)	0.49 (3)	-0.65 (3)
"	-4.42 (3)	0.10 (3)	0.19 (3)	-0.10 (3)	-0.86 (3)	0.52 (3)	0.16 (3)
M13	-0.03 (3)	-0.03 (3)	-0.06 (3)	0.12 (3)	-0.23 (3)	0.78 (3)	0.16 (3)
"	-0.03 (3)	-0.03 (3)	-0.03 (3)	0.21 (3)	-0.13 (3)	0.78 (3)	0.23 (3)
M14	0.19 (3)	0.09 (3)	-0.09 (3)	0.05 (3)	-0.31 (3)	0.99 (3)	0.22 (3)
"	0.19 (3)	0.09 (3)	0.06 (3)	0.38 (3)	0.03 (3)	0.99 (3)	0.27 (3)
M15	1.58 (3)	0.00 (3)	0.00 (3)	0.30 (3)	0.30 (3)	1.02 (3)	0.26 (3)
"	1.58 (3)	0.00 (3)	0.00 (3)	0.30 (3)	0.30 (3)	1.03 (3)	0.26 (3)
M16	0.19 (3)	-0.09 (3)	-0.06 (3)	0.05 (3)	-0.31 (3)	0.99 (3)	0.24 (3)
"	0.19 (3)	-0.09 (3)	0.09 (3)	0.38 (3)	0.03 (3)	0.99 (3)	0.29 (3)
M17	-0.03 (3)	0.03 (3)	0.03 (3)	0.12 (3)	-0.23 (3)	0.78 (3)	0.28 (3)
"	-0.03 (3)	0.03 (3)	0.06 (3)	0.21 (3)	-0.13 (3)	0.78 (3)	0.35 (3)
M18	-0.50 (3)	-0.02 (3)	0.00 (3)	-0.09 (3)	-0.55 (3)	0.22 (3)	-0.99 (3)
"	-0.50 (3)	-0.02 (3)	0.12 (3)	0.36 (3)	-0.10 (3)	0.23 (3)	-0.78 (3)
M19	-0.88 (3)	-0.01 (3)	0.00 (3)	-0.15 (3)	-0.32 (3)	0.42 (3)	-0.97 (3)
"	-0.88 (3)	-0.01 (3)	0.04 (3)	-0.02 (3)	-0.18 (3)	0.43 (3)	-0.93 (3)
M20	-0.88 (3)	0.01 (3)	0.00 (3)	-0.15 (3)	-0.32 (3)	0.08 (3)	-1.06 (3)
"	-0.88 (3)	0.01 (3)	0.04 (3)	-0.02 (3)	-0.18 (3)	0.08 (3)	-1.02 (3)
M21	-0.50 (3)	0.02 (3)	0.00 (3)	-0.09 (3)	-0.55 (3)	0.28 (3)	-0.99 (3)
"	-0.50 (3)	0.02 (3)	0.12 (3)	0.36 (3)	-0.10 (3)	0.29 (3)	-0.78 (3)

BENDING & COMP: TRUSS 1; MEMBER 12

Buckling Factor, CT is negelected due to small contribution

Grading:

2x4, 6 or 8

Doug-fir larch: No. 2

Assumptions:

Lateral support at points of bearing

SPS or gypboard attached to compression face

Maximum center-center spacing = 24"

Width, b	1.5 inches
Depth, d	3.5 inches
Length	5.5 feet
Max Axial Comp, C	4510 lbs
Max Reaction, R	150 lbs
Max Moment, M	50 ft-lbs
Max LL Deflection	0.15 inches
Max TL Deflection	0.31 inches
LL Defl Criteria = L/	240
TL Defl Criteria = L/	180
Duration factor, Cd	1.25
Repetitive Factor, Cr	1.15
fc =	859 psi
Fce=	2109 psi
Fc*=	1094 psi
F'c=	942 psi
fb=	16 psi
F'b=	1258 psi
Shear D/C ratio	0.36 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb/ (F'b(1-fc/Fce)) =	0.85 < 1.0, Member OK
Live Load defl ratio	0.55 < 1.0, Member OK
Total Load defl ratio	0.85 < 1.0, Member OK



DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

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ROOM 200
SACRAMENTO, CA
95814-2998

Permit Services
916-264-7619
FAX 916-264-7046

TILE ROOF WORKSHEET

This worksheet must be filled out whenever any type of tile roof is applied for.

If the answer to question #5 is yes, a written engineering report from a registered engineer must be provided with each application.

1. BRAND AND MODEL OF TILE MONIER DURALITE 2000
2. TILE WEIGHT PER SQUARE 600 LBS
3. WEIGHT OF ROOF SYSTEM PER SQUARE ~~140~~ LBS
4. TOTAL WEIGHT OF ROOF SYSTEM 740
5. DOES TOTAL WEIGHT OF ROOF SYSTEM EXCEED 750# PER SQUARE? YES NO
6. ROOF SLOPE 5/12

PLEASE PROVIDE A SEPARATE WORKSHEET FOR EACH APPLICATION INVOLVING A TILE ROOF.