

# LYVER ENGINEERING AND DESIGN

7950 SE 106th, Portland, Oregon 97266

Ph: 503.705.5283 Fax: 503.482.7449 TroyL@Lyver-EAD.com www.Lyver-EAD.com

April 5, 2013

Patrick Jackson  
JDA Architecture

**Reference:** 3267 NW Skyline Blvd, Portland, Oregon  
UNIT 1 C.O.P. Permit #12-206683-000-00-RS  
UNIT 11 C.O.P. Permit #12-205567-000-00-RS  
UNIT 13 C.O.P. Permit #12-205909-000-00-RS  
UNIT 16 C.O.P. Permit #12-207540-000-00-RS

**LEAD Project No:** 12-188

**Subject:** Plan Review Comments

The following information is intended to be in response to the City of Portland review comments on the attached pages from Peter Drake. The response comments are in the order presented on the attached sheet.

1. Refer to the attached revised calculation for the rails. The rail is to be 3x4 as shown on the Arch detail. The corner shall be attached with a Simpson 55L and the rail to the wall with a Simpson L30. See the redlines added to the plans. The rail provides the connection and no need for a robust connection to the deck shall be required since the rail provides the tie back to the main structure.
2. Please see the attached partial framing page. The beam size is to be redlined on the structural framing Sheet 4 for Buildings 11 and 16.
3. To be addressed by the project architect.
4. To be addressed by the project architect.

RECEIVED  
APR 16 2013

BDS  
DOCUMENT SERVICES

*Peter Drake.*

We trust this information is satisfactory for your needs; however, if you should have any further questions, or require additional information, please feel free to contact our office.

Sincerely,

Troy D. Lyver, PE/SE.  
Owner  
Lyver Engineering and Design, llc

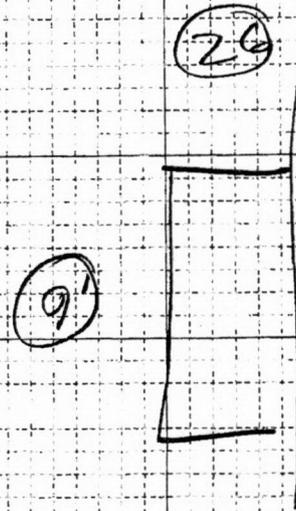


EXPIRES: 12-31-14



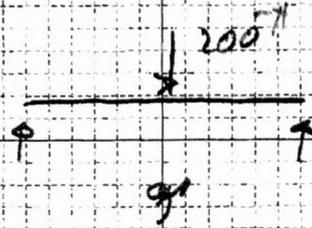
STRUCTURAL DESIGN OF  
BRACED RAIL

200# POINT LOAD IN  
ANY DIRECTION:



TOP RAIL - 4x3

SEE OUTPUT - 4x3 DFH



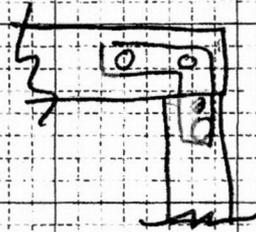
CORNER CONNECTION

Support 55L

V = 200# 10d SHORT

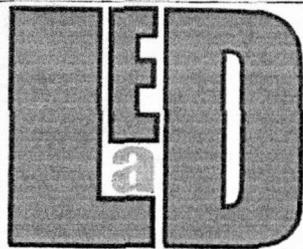
$$V_{all} = 147\# / NR$$

$$147(2) = 294 > 200\#$$



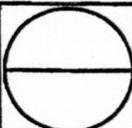
TIE AT WALL L30 -  $F_2 = 220\# > 200\#$

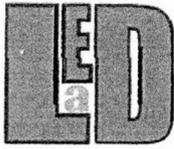
∴ USE L30 w/ SUPS AS  
INFO W/



PROJECT: MALLORY  
CLIENT: JDA  
LYVER ENGINEERING AND DESIGN  
7950 SE 106th, Portland, Oregon 97266  
P: 503.705.5283 Fa: 503.482.7449 Troy@Lyver-EAD.com www.Lyver-EAD.com

DESCRIPTION:  
DATE: 4/5/13 ENGINEER: MDL  
PROJECT NO. 12-1000 SHEET: PR1





# LYVER ENGINEERING AND DESIGN

7950 SE 106th, Portland, Oregon 97266  
Ph: 503.705.5283 Fax: 503.482.7449 TroyL@Lyver-EAD.com www.Lyver-EAD.com

File = C:\LEADJO-1\2012\JO-1112-188-1.MAC\UNIT2-1112-188-1.EC6  
ENERCALC, INC. 1983-2013, Build:6.13.2.27, Ver:6.13.2.27  
Licensee : Lyver Engineering and Design, LLC

## Multiple Simple Beam

Lic. #: KW-06009286

### Description :

Wood Beam Design : top rail

Calculations per 2005 NDS, IBC 2006, CBC 2007, ASCE 7-05

BEAM Size : **3x4, Sawn, Fully Unbraced**

Using Allowable Stress Design with 2012 IBC & ASCE 7-10 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir - Larch

Wood Grade : No.1

Fb - Tension	1000 psi	Fc - Prll	1500 psi	Fv	180 psi	Ebend- xx	1700 ksi	Density	32.21 pcf
Fb - Compr	1000 psi	Fc - Perp	625 psi	Ft	675 psi	Eminbend - xx	620 ksi		

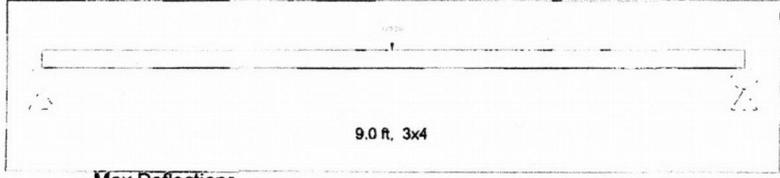
### Applied Loads

Point: L = 0.20 k @ 4.50 ft

### Design Summary

Max fb/Fb Ratio = 0.710 : 1  
 fb : Actual : 1,057.96 psi at 4.500 ft in Span # 1  
 Fb : Allowable : 1,489.76 psi  
 Load Comb : +D+L+H

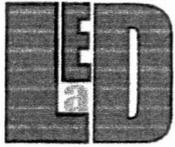
Max fv/FvRatio = 0.095 : 1  
 fv : Actual : 17.14 psi at 0.000 ft in Span # 1  
 Fv : Allowable : 180.00 psi  
 Load Comb : +D+L+H



Max Reactions (k)	D	L	Lr	S	W	E	H
Left Support		0.10					
Right Support		0.10					

Max Deflections			
Downward L+Lr+S	0.347 in	Downward Total	0.347 in
Upward L+Lr+S	0.000 in	Upward Total	0.000 in
Live Load Defl Ratio	310 >240	Total Defl Ratio	310 >180

PRZ



# LYVER ENGINEERING AND DESIGN

7950 SE 105th, Portland, Oregon 97266  
Ph: 503 795 5283 Fax: 503 482 7449 TroyL@Lyver-EAD.com www.Lyver-EAD.com

## Multiple Simple Beam

File = C:\LEADJO-1\2012JO-1\12-188-1.MAC\12-188-1.EC6  
ENERCALC, INC. 1983-2013, Build:6.13.2.27, Ver:6.13.2.27  
Licensee: Lyver Engineering and Design, llc

Lic. #: KW-06009286

### Description :

Wood Beam Design : Rafter with birdsmouth

Calculations per 2005 NDS, IBC 2009, CBC 2010, ASCE 7-10

BEAM Size : 2x10, Sawn, Fully Braced

Using Allowable Stress Design with 2012 IBC & ASCE 7-10 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir - Larch

Wood Grade : No.2

Fb - Tension	900 psi	Fc - Prll	1350 psi	Fv	180 psi	Ebend- xx	1600 ksi	Density	32.21 pcf
Fb - Compr	900 psi	Fc - Perp	625 psi	Ft	575 psi	Eminbend - xx	580 ksi		

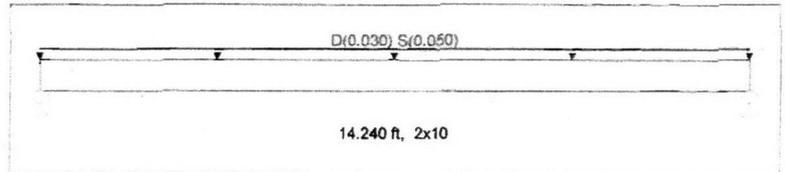
### Applied Loads

Unif Load: D = 0.0150, S = 0.0250 k/ft, Trib = 2.0 ft

### Design Summary

Max fb/Fb Ratio = 0.999 : 1  
 fb : Actual : 1,137.57 psi at 7.120 ft in Span # 1  
 Fb : Allowable : 1,138.50 psi  
 Load Comb : +D+S+H

Max fv/Fv Ratio = 0.306 : 1  
 fv : Actual : 55.01 psi at 0.000 ft in Span # 1  
 Fv : Allowable : 180.00 psi  
 Load Comb : +D+S+H



Max Reactions (k)		D	L	Lr	S	W	E	H	Max Deflections			
Left Support	0.21				0.36				Downward L+Lr+S	0.294 in	Downward Total	0.470 in
Right Support	0.21				0.36				Upward L+Lr+S	0.000 in	Upward Total	0.000 in
									Live Load Defl Ratio	581 > 360	Total Defl Ratio	363 > 180

$$\frac{1.5V}{A} = F_v = 1.5 \left( \frac{210 + 360}{1.5(3.5)} \right) = 162.9 \text{ psi}$$

$$162.9 < 180 \text{ psi} \quad \checkmark \text{OK}$$

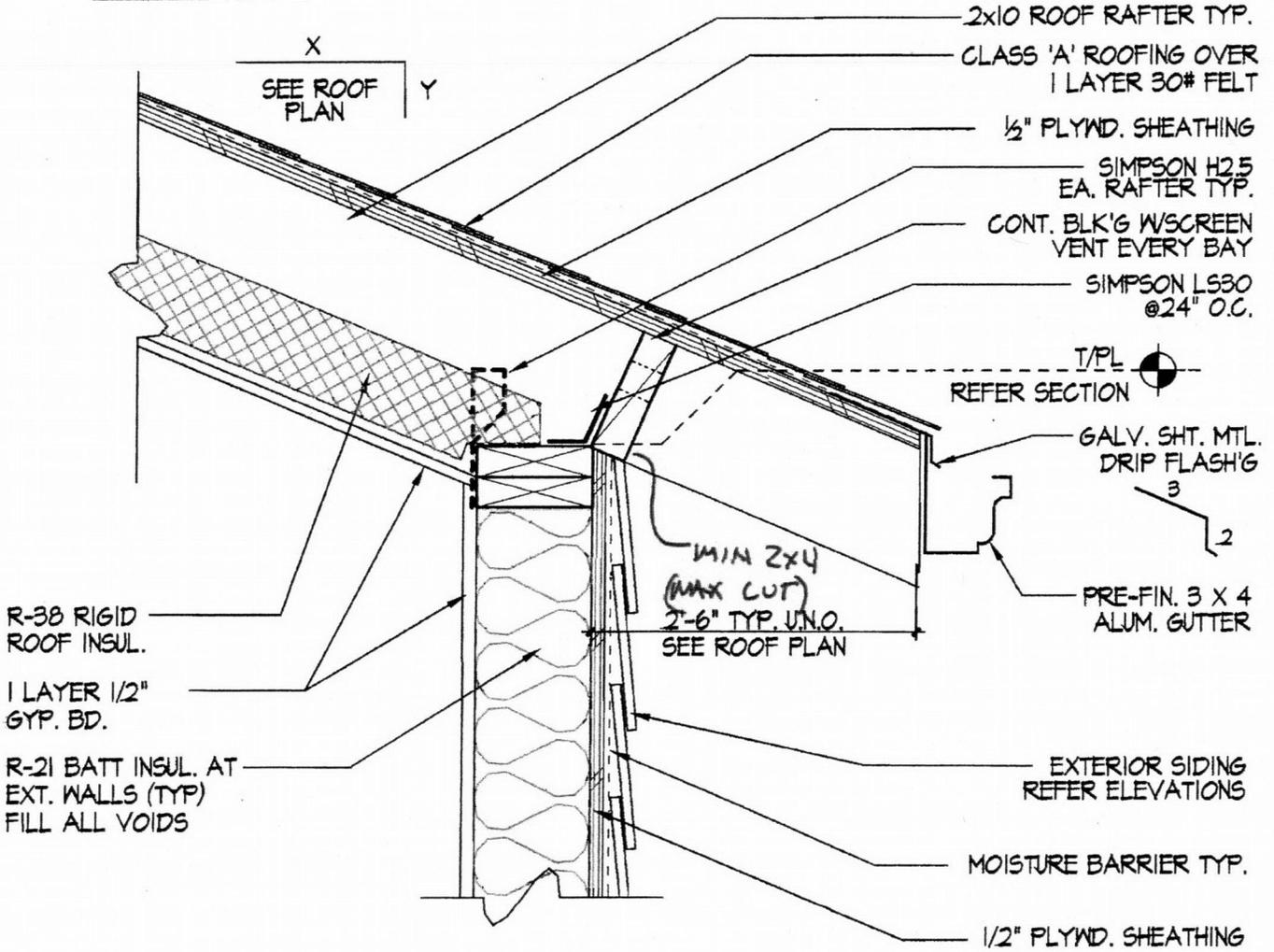
MIN CUT SIZE  
TO 2x4



EXPIRES: 12-31-14



EXPIRES: 12-31-14



1

**EAVE DETAIL**

1 1/2"=1'-0"

XA-RF1



# LYVER ENGINEERING AND DESIGN

7950 SE 106th, Portland, Oregon 97266

Ph: 503.705.5283 Fax: 503.482.7449 TroyL@Lyver-EAD.com www.Lyver-EAD.com

March 14, 2013

Patrick Jackson  
JDA Architecture

**Reference:** 3267 NW Skyline Blvd, Portland, Oregon  
UNIT 1 C.O.P. Permit #12-206683-000-00-RS  
UNIT 11 C.O.P. Permit #12-205567-000-00-RS  
UNIT 13 C.O.P. Permit #12-205909-000-00-RS  
UNIT 16 C.O.P. Permit #12-207540-000-00-RS

**LEAD Project No:** 12-188

**Subject:** Plan Review Comments

The following information is intended to be in response to the City of Portland review comments on the attached pages from Peter Drake. The response comments are in the order presented on the attached sheet.

1. Noted. 1 reply has been provided for all for lots.
2. To be addressed by the project architect.
3. Please refer to the detail used for the attachment of the rail at the balcony. Also see the attached structural calculation.
4. To be addressed by the project architect.
5. To be addressed by the project architect.
6. To be addressed by the project architect.
7. To be addressed by the project architect.

8. There is no need for a stepped foundation detail due to the fact that the site will be excavated to allow a flat footing/foundation at the lowest level.
9. The header beam calculation is provided on page 26 of 33. The beam is called out on plan sheet S4 on the left side of the plan. It is shown on the structural framing plans, therefore the beam should not need to be added to the architectural page, but may be for clarity.
10. Please refer to structural page S1. The shear wall chart and schedule calls for the use of Simpson BP5/8 plate washers which meets the requirement you note. No changes appear to be needed on the submitted plans.
11. To be addressed by the project architect.
12. To be addressed by the project architect.
13. To be addressed by the project architect.

We trust this information is satisfactory for your needs; however, if you should have any further questions, or require additional information, please feel free to contact our office.

Sincerely,

Troy D. Lyver, PE/SE.  
Owner  
Lyver Engineering and Design, llc



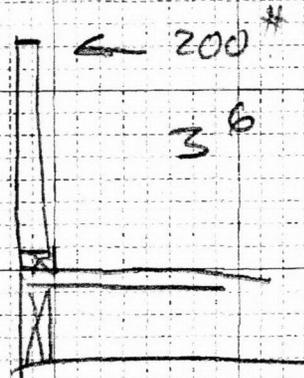
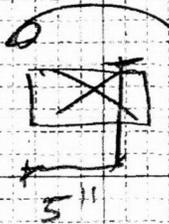
EXPIRES: 12-31-14

BALCONY RAIL CALC

$200\# = \checkmark$

$200(3.5) = M = 700\# \cdot ft$

$T = C = \frac{700}{5/12} = 1680\#$



SPREAD OUT OVER 3' - 1:1 FROM POINT

$M = \frac{1680}{3.5} = 480\# / ft$

$T_{ALL} = 475(1.25) = 594\#$



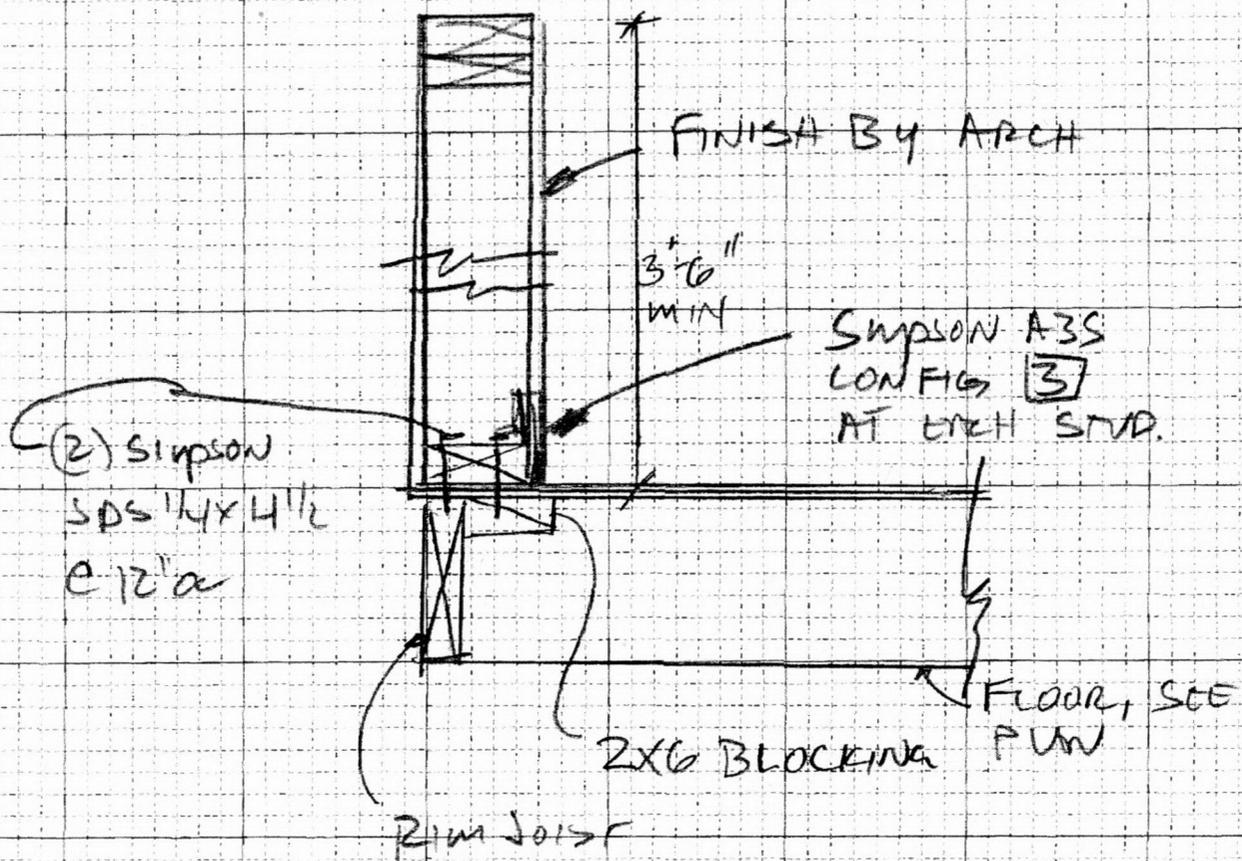
USE (2) 1/4" X 4 1/2 SPS @ 12" OC

CONNECT SPS TO SILL -

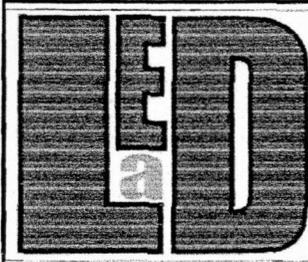
USE A35  
CONFIG 3 AT 16" OC

$T_{UP} = 300\#$  ALLOW

	PROJECT:	MAZLUM		DESCRIPTION:	
	CLIENT:	JDA			
	LYVER ENGINEERING AND DESIGN		DATE:	2/4/13	ENGINEER:
7950 SE 106th, Portland, Oregon 97266		PROJECT NO.:	12-100	SHEET:	1/2
Ph: 503.705.9283 Fax: 503.482.7449 Troy@Lyver-Eng.com www.Lyver-Eng.com					



SECTION AT BALCONY RAIL  
NTS



PROJECT: **MACCOM**

DESCRIPTION:

CLIENT: **JDA**

**LYVER ENGINEERING AND DESIGN**

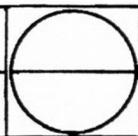
DATE: **2/4/13**

ENGINEER: **TDL**

7950 SE 106th, Portland, Oregon 97266  
Ph: 503.705.5263 Fax: 503.482.7449 [Troy@Lyver-E+D.com](mailto:Troy@Lyver-E+D.com) [www.Lyver-E+D.com](http://www.Lyver-E+D.com)

PROJECT NO.: **12-100**

SHEET: **2/2**



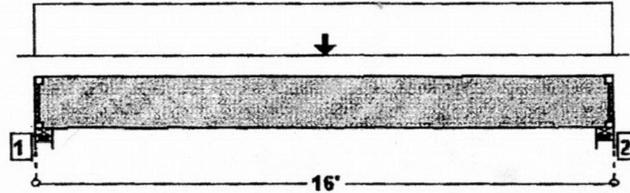
Garage Header

GH

5 1/4" x 11 7/8" 2.0E Parallam® PSL

**THIS PRODUCT MEETS OR EXCEEDS THE SET DESIGN CONTROLS FOR THE APPLICATION AND LOADS LISTED**

Member Slope: 0/12 Roof Slope 0/12



All dimensions are horizontal.

Product Diagram is Conceptual.

**LOADS:**

Analysis is for a Header (Flush Beam) Member. Tributary Load Width: 2'  
 Primary Load Group - Snow (psf): 25.0 Live at 115 % duration, 15.0 Dead  
 Vertical Loads:

Type	Class	Live	Dead	Location	Application	Comment
Point(lbs)	Snow(1.15)	4088	2990	8'	-	

**SUPPORTS:**

	Input Width	Bearing Length	Vertical Reactions (lbs) Live/Dead/Uplift/Total	Detail	Other
1	Stud wall 5.50"	1.94"	2444 / 1891 / 0 / 4335	L1: Blocking	1 Ply 1 1/4" x 11 7/8" 1.3E TimberStrand® LSL
2	Stud wall 5.50"	1.94"	2444 / 1891 / 0 / 4335	L1: Blocking	1 Ply 1 1/4" x 11 7/8" 1.3E TimberStrand® LSL

-See TJ SPECIFIER'S / BUILDERS GUIDE for detail(s): L1: Blocking

**DESIGN CONTROLS:**

	Maximum	Design	Control	Control	Location
Shear (lbs)	4302	-4191	13861	Passed (30%)	Rt. end Span 1 under Snow loading
Moment (Ft-Lbs)	30056	30056	34332	Passed (88%)	MID Span 1 under Snow loading
Live Load Defl (in)		0.436	0.511	Passed (L/422)	MID Span 1 under Snow loading
Total Load Defl (in)		0.767	0.767	Passed (L/240)	MID Span 1 under Snow loading

-Deflection Criteria: STANDARD(LL:L/360,TL:L/240).

-Bracing(Lu): All compression edges (top and bottom) must be braced at 16' o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.

-Design assumes adequate continuous lateral support of the compression edge.

**ADDITIONAL NOTES:**

-IMPORTANT! The analysis presented is output from software developed by Trus Joist (TJ). TJ warrants the sizing of its products by this software will be accomplished in accordance with TJ product design criteria and code accepted design values. The specific product application, input design loads, and stated dimensions have been provided by the software user. This output has not been reviewed by a TJ Associate.

-Not all products are readily available. Check with your supplier or TJ technical representative for product availability.

-THIS ANALYSIS FOR TRUS JOIST PRODUCTS ONLY! PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.

-Allowable Stress Design methodology was used for Building Code UBC analyzing the TJ Distribution product listed above.

**PROJECT INFORMATION:**

**OPERATOR INFORMATION:**

24/31