STATE OF COLORADO
Cover Sheet for Building Specifications & QA Manual

Jan-2019

Name of Manufacturer: Irontown Homes **Plant I.D. Number:** 3489

Complete Address: 1947 N. Chappel Drive, Spanish Fork, UT 84660

Contact Name: Kam Valgardson **Contact Number:** 801-798-9026

Contact Email address: kam@irontownhomes.com

Third Party Inspection Agency: Radco

For more detailed information on this plan approval please contact the Division of Housing

Model Name/No.

Sledhaus - Jones

Sq. Footage Finished: 572

Sq. Footage Unfinished: 0

Approval Stamp

State of Colorado
Division of Housing
Oct 11 2022

APPROVED PLANS
Subject to field inspection
LOCAL INSPECTION ITEMS REQUIRED
R-0004859

EXPIRES: 4/1/2023

MANUFACTURER CERTIFIES that only approved equipment and materials will be used and the installations shall be made in accordance with approved plans and applicable codes and provisions of the Colorado Division of Housing. Manufacturer agrees to in-plant inspection of units manufactured under the above plan approval. Application shall be made for and insignia affixed to each factory built unit that is subject to Colorado statutes and which is manufactured or is to be sold, offered for sale, or occupied in the State of Colorado.

DIV. OF HOUSING, 1313 SHERMAN STREET, RM 320, DENVER, CO. 80203 (303) 864-7836 Fax (303) 864-7857

COLORADO
Department of Local Affairs
Division of Housing

AC (alternative construction) INSPECTION REQUIRED NOTICE
The following is based on information provided to the Codes Section and may be modified based on the actual findings of the field inspection.

DATE: July 08, 2022

MANUFACTURER: Irontown Homes ID NO.: 3489

CONTACT: Kam Valgardson / kam@irontownhomes.com FAX NO.:

MODEL NO.: Jones Sledhaus - Steamboat Springs P/A NO.: R-0004859

OBJECTIVE OF THIS INSPECTION LETTER: To take measures to ensure that all integral portions of this construction project are reviewed, inspected, and approved to the satisfaction of all State and local AHJ regulations. Portions of this modular construction project may be shipped loose with the factory-built structure(s) &completed on-site and portions may be completed by others (OSBO) outside of the controlled environment & design scope of the modular manufacturer. The following list includes items that should be verified at the jobsite.

INSPECTION ITEMS: Please check the following work:

Local Inspection Items:
1.) Crawl space vapor barrier, insulation and air transfer fan for conditioned crawl space.
2.) Exterior wall light fixture trim (side walls).

See specification Exhibits for full list of responsibilities between factory and contractor(s).

Site Address:_____
The local building department by signing this form takes responsibility for inspecting the site built construction stated above to approved plans and current codes.
Normal permits and fees for these inspections are to be per the local jurisdiction.
State approved plans for Factory Built Construction may be obtained from the Builder/Manufacturer

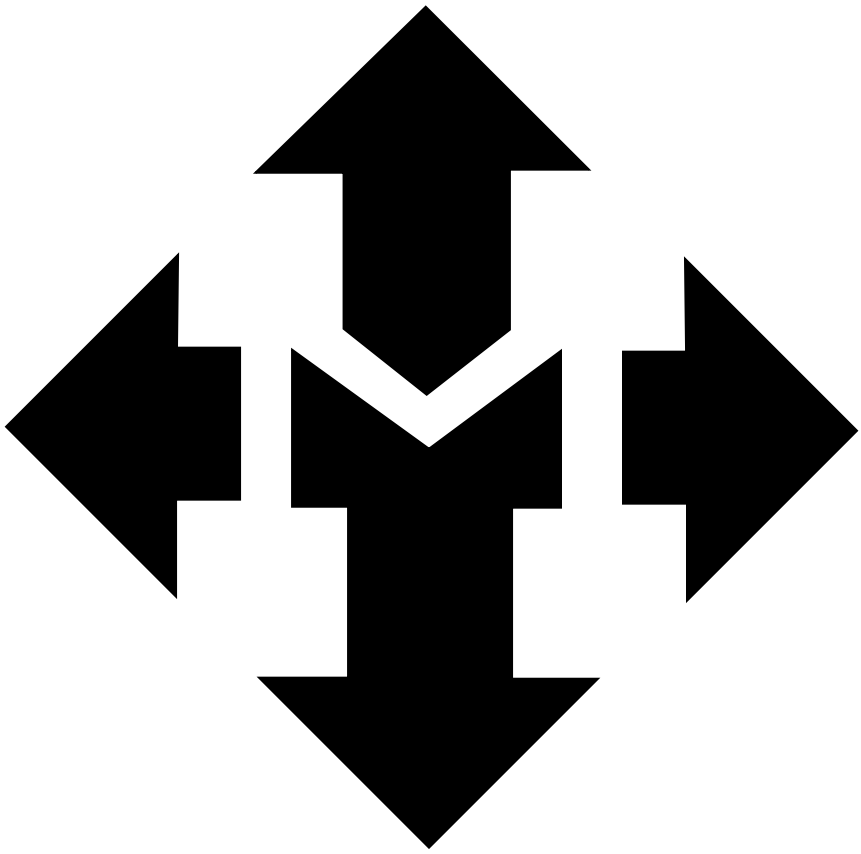
Building Official Printed Name_____

Building Official Signature_____**Date**_____

Local jurisdiction may check box to defer inspection to the Division of Housing, Initials_____

or DOH approved Inspector.
A copy of this Notice must be included with the installation instructions and shipped with the unit.

Please direct questions to DOH Engineer, @ 303-864-7835



McNeil Engineering, Structural, L.C.
A Part of the McNeil Group
321 North Mall Drive, Suite J-101
St. George, UT 84790
Ph: 435-632-7660 fax: 801-255-8071

Structural Calculations

For:

KEB Homes, Inc.

Attn: Kam Valgardson

Jones Sledhaus

28935 Yellow Jacket Dr., Oak Creek, Colorado

Prepared By Anthony Beau Schmid
Supervised by Brian Warner P.E.

IMPORTANT
If the seal is not in red or green ink and the signature is not in red or blue ink, then this is an unauthorized copy and is to be rejected as unsanctioned and unusable.

June 27, 2022

McNeil Engineering assumes responsibility only for the items addressed herein and does not assume responsibility for the remainder of the structure. No site observations are scheduled to verify the understanding of the contractor or the proper installation of the items addressed.

22411
ABS

NGINEERING STRUCTURAL, L.C.
THE MCNEIL GROUP
ALL DRIVE SUITE J 101
UTAH 84790
(435) 632-7660 FAX: (801) 255-8071

PROJECT INFORMATION:

Project Name:	KEB Homes, Inc. , Jones Sledhaus
Project Location:	28935 Yellow Jacket Dr., Oak Creek, Colorado

DESIGN CRITERIA:

Governing Building Code:	IBC 2018/ IRC 2018
Type of Construction:	Wood Framed Shear Wall
Roof Snow Load:	101 psf (120 psf Ground)
Roof Live Load:	20 psf
Roof Dead Load:	15 psf
Floor Dead Load:	15 psf
Floor Live Load:	40 psf
Wind (3 Second Gust):	115 MPH (Ultimate Wind Speed), exp C
Risk Category:	II
Seismic Design Category:	D
Site Class:	C
S_{DS}:	0.527
S_{D1}:	0.164
R:	6.5

CONSTRUCTION MATERIALS:

Concrete 28 day Strength

Footings:	3000 psi (2500 psi used in design)
Walls:	3000 psi (2500 psi used in design)
Slab on Grade:	3000 psi (2500 psi used in design)

Reinforcing Grade: ASTM A615 Grade 60

Timber

Sawn Lumber:	Hem Fir no. 2 – Fb = 850 psi, Fv = 150 psi, E = 1300 ksi
LVL :	I-Level or equivalent – Fb = 2600 psi, Fv = 285 psi, E = 1900 ksi
Glu-Laminated:	24F-V4 DF/DF - Fb = 2400 psi, Fv = 165 psi, E = 1800 ksi

SOILS CRITERIA:

Bearing Pressures 1,500 psf Per Chapter 18 of the 2018 IBC

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In accordance with IBC Section 101.3, the purpose of the structural design requirements, including earthquake requirements, contained herein is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain function.

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In accordance with IBC Section 101.3, the purpose of the structural design requirements, including earthquake requirements, contained herein is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain function.

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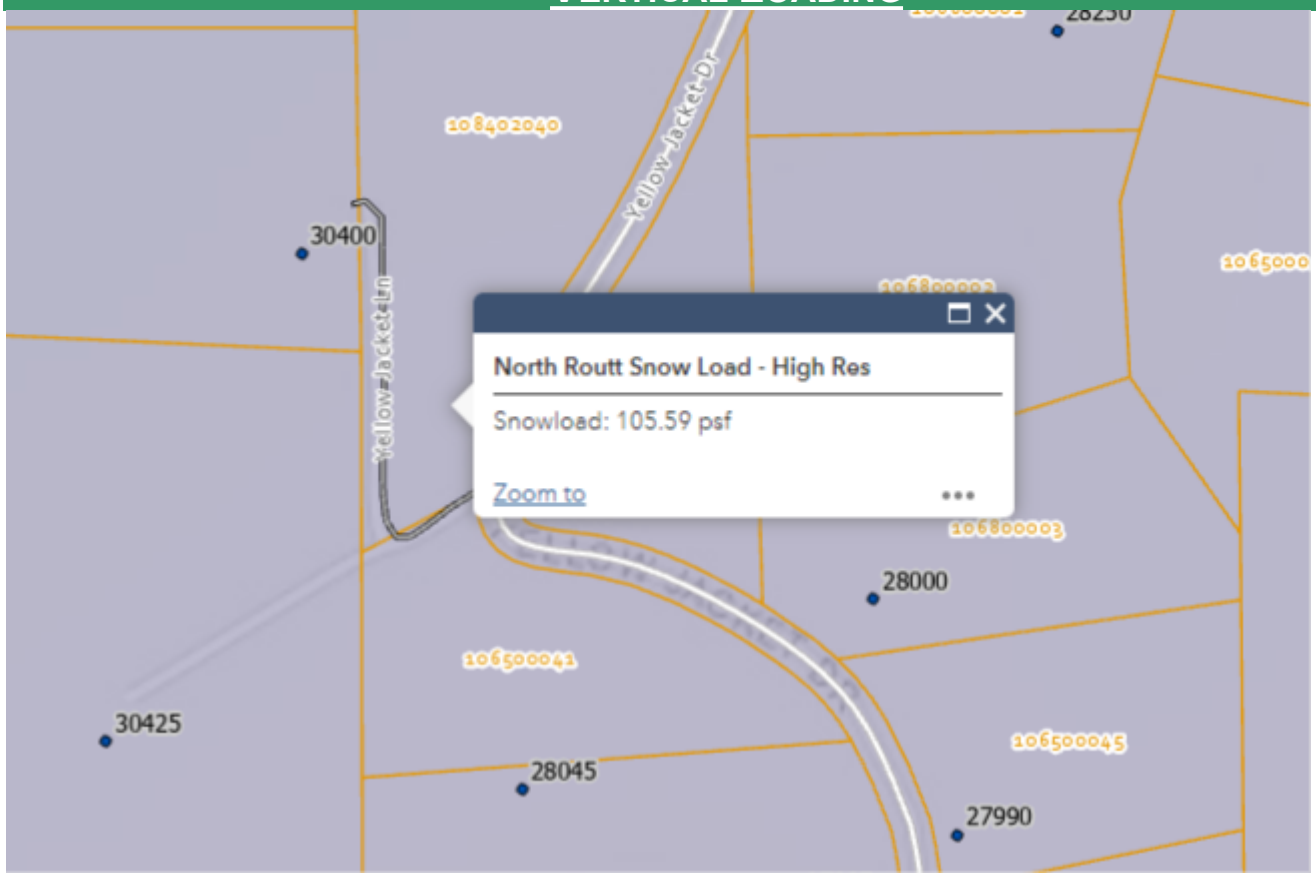
CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
PAVEMENT & ROOF CONSULTING

PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**7**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

VERTICAL LOADING



Snow Load:
Ground Snow Load=120 psf (per local jurisdiction)
Pf=0.7*Ce*Ct*Is*pg
Ce=1.0, Ct=1.2, Is=1.0
Pf=0.7*1.0*1.2*1.0*120 psf=100.8 use 101 psf

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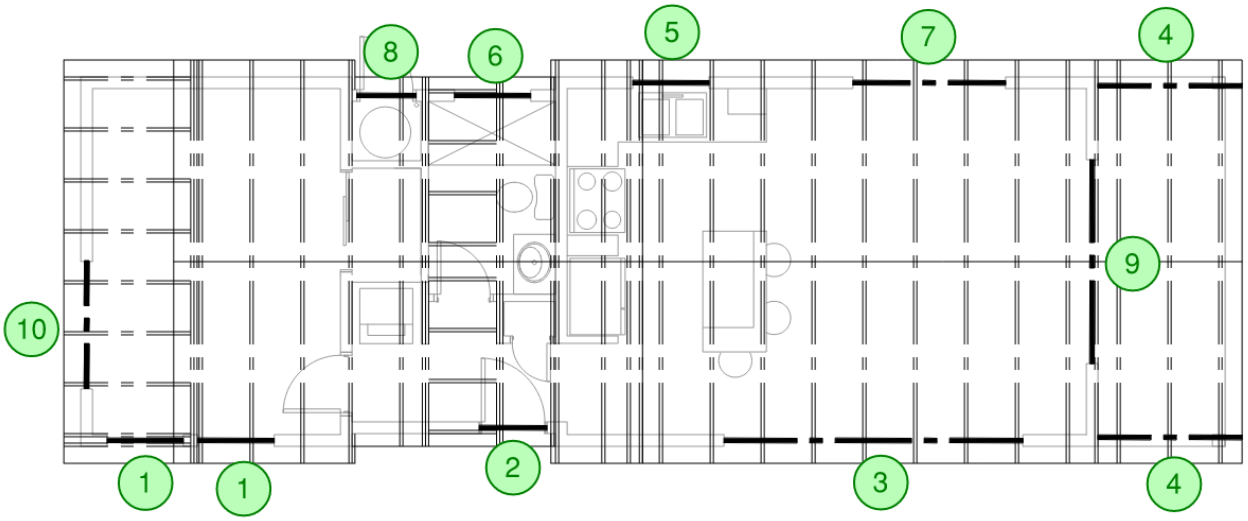
(435) 632-7660 • FAX (801) 255-8071

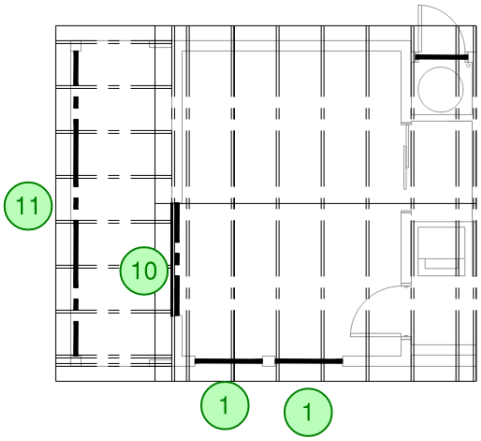
SHEET	DATE	PROJECT
8	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

Framing Calculations

Roof Framing Key with Beam Designations



Beam 11 is for the optional back patio.



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PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**9**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Roof Beam Calculations

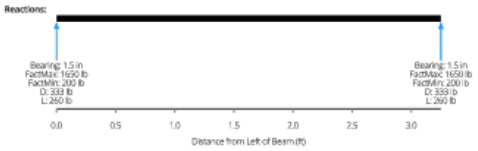
Wood Beam (ASD) (version 139) — Generic Beam — Created with ClearCalcs.com

McNEIL ENGINEERING

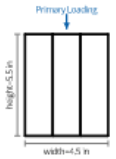
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB1**	PASS
References:	NDS 2018 (ASD)			

Summary

79%	Allowable Bending Moment	$M' =$	1680 lb · ft
58%	Allowable Shear	$V' =$	2850 lb
60%	Allowable Bearing Load	$R' =$	2730 lb
25%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.0271 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	1440
5%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.0088 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	4430
6%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.0122 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	3190

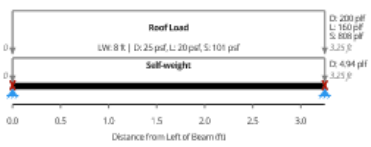


Key Properties



Member		3 plies - 2x6 H-F Stud
Beam Plan Length	$L_X =$	3.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$ 24.7 in²
Strong Axis Moment of Inertia	$I_{xx} =$ 62.4 in⁴
Section Modulus	$S =$ 22.7 in³
Base Allowable Bending Stress	$F_b =$ 675 psi
Base Allowable Shear Stress	$F_v =$ 150 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$ 405 psi
True Modulus of Elasticity	$E_{true} =$ 1 200 000 psi
Apparent Modulus of Elasticity	$E_{app} =$ 1 200 000 psi
Modulus of Elasticity for Deflections	$E =$ 1 200 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$ 1 200 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} =$ 1
Incising Factor	$C_{i,b} =$ 1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} =$ 1.15
Governing Beam Stability Factor - Positive Bending	$C^+_L =$ 0.998
Adjusted Bending Strength - Positive Bending	$F'^+_b =$ 891 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} =$ 0.9
Governing Beam Stability Factor - Negative Bending	$C^-_L =$ 0.998
Adjusted Bending Strength - Negative Bending	$F'^-_b =$ 698 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$ 1.15
Adjusted Shear Strength	$F'_v =$ 173 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$ 405 psi

Comments

Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

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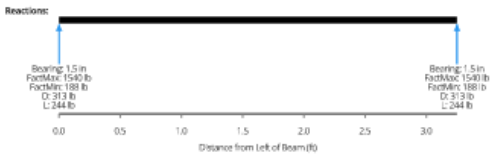
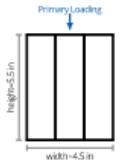
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB2**	PASS
References:	NDS 2018 (ASD)			

Summary

74%	Allowable Bending Moment	$M' = 1680$ lb · ft
54%	Allowable Shear	$V' = 2850$ lb
56%	Allowable Bearing Load	$R' = 2730$ lb
23%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0254$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 1540$
5%	Governing Long-Term Deflection	$\delta_{LT} = -0.00825$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 4720$
5%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.0115$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 3400$

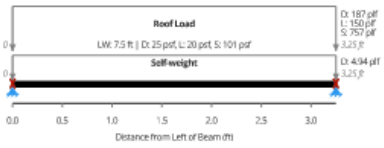


Key Properties



Member		3 plies - 2x6 H-F Stud
Beam Plan Length	$L_X =$	3.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 24.7$ in^2
Strong Axis Moment of Inertia	$I_{xx} = 62.4$ in^4
Section Modulus	$S = 22.7$ in^3
Base Allowable Bending Stress	$F_b = 675$ psi
Base Allowable Shear Stress	$F_v = 150$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 405$ psi
True Modulus of Elasticity	$E_{true} = 1\,200\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,200\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,200\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,200\,000$ psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} = 1$
Incising Factor	$C_{i,b} = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C^+_L = 0.998$
Adjusted Bending Strength - Positive Bending	$F^{v+}_b = 891$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C^-_L = 0.998$
Adjusted Bending Strength - Negative Bending	$F^{v-}_b = 698$ psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1.15$
Adjusted Shear Strength	$F'_v = 173$ psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b = 405$ psi

Comments

Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

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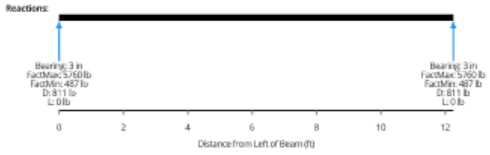
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB3**	PASS
References:	NDS 2018 (ASD)			

Summary

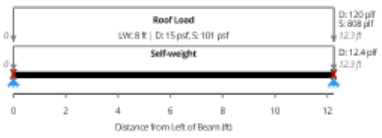
83%	Allowable Bending Moment	$M' = 21\,300$ lb · ft
53%	Allowable Shear	$V' = 10\,900$ lb
58%	Allowable Bearing Load	$R' = 9990$ lb
75%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.46$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 320$
5%	Governing Long-Term Deflection	$\delta_{LT} = -0.0377$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 3900$
9%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.0754$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 1950$



Key Properties

Member		5-1/8x10-1/2 24F-V4 DF
Beam Plan Length	$L_x =$	12.3 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 53.8$ in²
Strong Axis Moment of Inertia	$I_{xx} = 494$ in⁴
Section Modulus	$S = 94.2$ in³
Base Allowable Bending Stress	$F_b = 2400$ psi
Base Allowable Shear Stress	$F_v = 265$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 650$ psi
True Modulus of Elasticity	$E_{true} = 1\,900\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,800\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,800\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,800\,000$ psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C_L^{+} = 0.982$
Adjusted Bending Strength - Positive Bending	$F_b^{t+} = 2710$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^{-} = 0.99$
Adjusted Bending Strength - Negative Bending	$F_b^{t-} = 1650$ psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1.15$
Adjusted Shear Strength	$F_v' = 305$ psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F_{c\perp}'/C_b = 650$ psi

Comments

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SHEET	DATE	PROJECT
12	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

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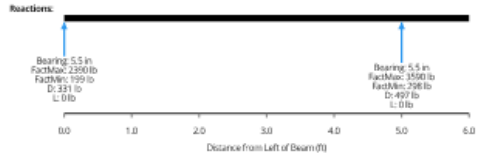
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB4**	PASS
References:	NDS 2018 (ASD)			

Summary

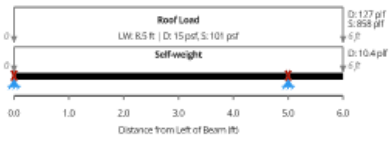
54%	Allowable Bending Moment	$M' =$	5330 lb · ft
46%	Allowable Shear	$V' =$	5610 lb
41%	Allowable Bearing Load	$R' =$	8770 lb
15%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	0.0146 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	823
2%	Governing Long-Term Deflection	$\delta_{LT} =$	0.00234 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	5120
2%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	0.00234 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	5120



Key Properties

Member		6x10 H-F No. 2
Beam Plan Length	$L_x =$	6 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations		International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	52.2 in²
Strong Axis Moment of Inertia	$I_{xx} =$	393 in⁴
Section Modulus	$S =$	82.7 in³
Base Allowable Bending Stress	$F_b =$	675 psi
Base Allowable Shear Stress	$F_v =$	140 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	405 psi
True Modulus of Elasticity	$E_{true} =$	1 100 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 100 000 psi
Modulus of Elasticity for Deflections	$E =$	1 100 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 100 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{Fb} =$	1
Incising Factor	$C_{ib} =$	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{Db} =$	1.15
Governing Beam Stability Factor - Positive Bending	$C^+_L =$	0.996
Adjusted Bending Strength - Positive Bending	$F^{+}_b =$	773 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{Db} =$	1.15
Governing Beam Stability Factor - Negative Bending	$C^-_L =$	0.996
Adjusted Bending Strength - Negative Bending	$F^{-}_b =$	773 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1.15
Adjusted Shear Strength	$F'_v =$	161 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$	271 psi

Comments

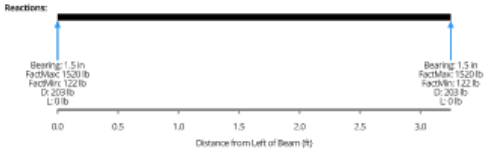
Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

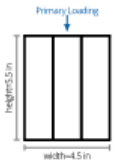
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB5**	PASS
References:	NDS 2018 (ASD)			

Summary

73%	Allowable Bending Moment	$M' = 1680\ \text{lb} \cdot \text{ft}$
53%	Allowable Shear	$V' = 2850\ \text{lb}$
55%	Allowable Bearing Load	$R' = 2730\ \text{lb}$
17%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0271\ \text{in}$
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 1440$
1%	Governing Long-Term Deflection	$\delta_{LT} = -0.00209\ \text{in}$
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 18\,600$
2%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.00419\ \text{in}$
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 9310$

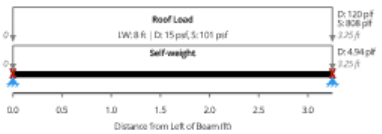


Key Properties



Member		3 plies - 2x6 H-F Stud
Beam Plan Length	$L_x =$	3.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 24.7\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 62.4\ \text{in}^4$
Section Modulus	$S = 22.7\ \text{in}^3$
Base Allowable Bending Stress	$F_b = 675\ \text{psi}$
Base Allowable Shear Stress	$F_v = 150\ \text{psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 405\ \text{psi}$
True Modulus of Elasticity	$E_{true} = 1\,200\,000\ \text{psi}$
Apparent Modulus of Elasticity	$E_{app} = 1\,200\,000\ \text{psi}$
Modulus of Elasticity for Deflections	$E = 1\,200\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,200\,000\ \text{psi}$

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} = 1$
Incising Factor	$C_{i,b} = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C_L^{+} = 0.998$
Adjusted Bending Strength - Positive Bending	$F_b^{+} = 891\ \text{psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^{-} = 0.998$
Adjusted Bending Strength - Negative Bending	$F_b^{-} = 698\ \text{psi}$

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1.15$
Adjusted Shear Strength	$F_v' = 173\ \text{psi}$

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F_{c\perp}'/C_b = 405\ \text{psi}$

Comments

Wood Beam (ASD) (version 139) — Generic Beam

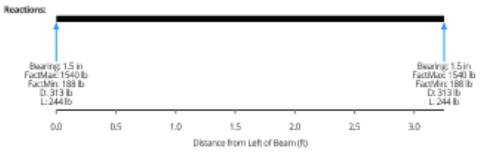
Created with ClearCalcs.com

McNEIL ENGINEERING

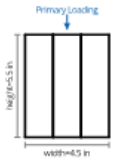
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB6**	PASS
References:	NDS 2018 (ASD)			

Summary

74%	Allowable Bending Moment	$M' =$	1680 lb · ft
54%	Allowable Shear	$V' =$	2850 lb
56%	Allowable Bearing Load	$R' =$	2730 lb
16%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.0254 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	1540
4%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.00825 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	4720
5%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.0115 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	3400

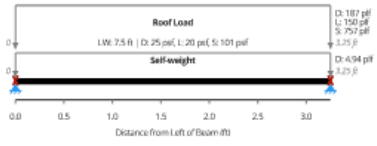


Key Properties



Member		3 plies - 2x6 H-F Stud
Beam Plan Length	$L_X =$	3.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations		International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	24.7 in²
Strong Axis Moment of Inertia	$I_{xx} =$	62.4 in⁴
Section Modulus	$S =$	22.7 in³
Base Allowable Bending Stress	$F_b =$	675 psi
Base Allowable Shear Stress	$F_v =$	150 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	405 psi
True Modulus of Elasticity	$E_{true} =$	1 200 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 200 000 psi
Modulus of Elasticity for Deflections	$E =$	1 200 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 200 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} =$	1
Incising Factor	$C_{i,b} =$	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} =$	1.15
Governing Beam Stability Factor - Positive Bending	$C^+_L =$	0.998
Adjusted Bending Strength - Positive Bending	$F^{+}_b =$	891 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} =$	0.9
Governing Beam Stability Factor - Negative Bending	$C^-_L =$	0.998
Adjusted Bending Strength - Negative Bending	$F^{-}_b =$	698 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1.15
Adjusted Shear Strength	$F'_v =$	173 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$	405 psi

Comments

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(435) 632-7660 • FAX (801) 255-8071

CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
PAVEMENT & ROOF CONSULTING

PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**15**
	DESIGNED BY **2 2 4 1 1** **A B S**	PROJECT NO. **22411**

Wood Beam (ASD) (version 139) — Generic Beam

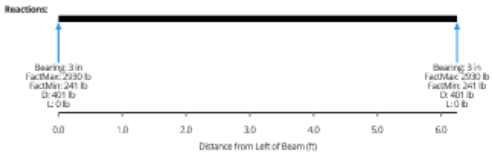
Created with ClearCalcs.com

McNEIL ENGINEERING

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB7**	PASS
References:	NDS 2018 (ASD)			

Summary

70%	Allowable Bending Moment	$M' =$	6550 lb · ft
61%	Allowable Shear	$V' =$	4790 lb
54%	Allowable Bearing Load	$R' =$	5470 lb
23%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.0719 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	1040
1%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.00571 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	13 100
3%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.0114 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	6570



Key Properties

Member		3 plies - 2x10 H-F No. 2
Beam Plan Length	$L_X =$	6.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads

Design Conditions

Design Code for Load Combinations		International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	41.6 in²
Strong Axis Moment of Inertia	$I_{xx} =$	297 in⁴
Section Modulus	$S =$	64.2 in³
Base Allowable Bending Stress	$F_b =$	850 psi
Base Allowable Shear Stress	$F_v =$	150 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	405 psi
True Modulus of Elasticity	$E_{true} =$	1 300 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 300 000 psi
Modulus of Elasticity for Deflections	$E =$	1 300 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 300 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} =$	1.1
Incising Factor	$C_{i,b} =$	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} =$	1.15
Governing Beam Stability Factor - Positive Bending	$C^+_L =$	0.991
Adjusted Bending Strength - Positive Bending	$F'^+_b =$	1220 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} =$	0.9
Governing Beam Stability Factor - Negative Bending	$C^-_L =$	0.993
Adjusted Bending Strength - Negative Bending	$F'^-_b =$	961 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1.15
Adjusted Shear Strength	$F'_v =$	173 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$	405 psi

Comments

Wood Beam (ASD) (version 139) — Generic Beam

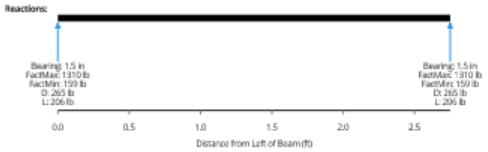
Created with ClearCalcs.com

McNEIL ENGINEERING

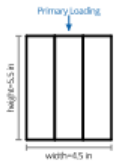
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB8**	PASS
References:	NDS 2018 (ASD)			

Summary

53%	Allowable Bending Moment	$M' =$	1680 lb · ft
46%	Allowable Shear	$V' =$	2850 lb
48%	Allowable Bearing Load	$R' =$	2730 lb
9%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.013 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	2530
2%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.00423 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	7800
3%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.00589 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	5610

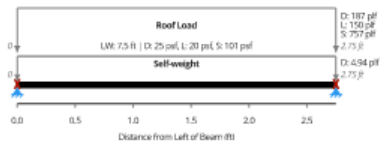


Key Properties



Member		3 plies - 2x6 H-F Stud
Beam Plan Length	$L_X =$	2.75 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations		International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	24.7 in²
Strong Axis Moment of Inertia	$I_{xx} =$	62.4 in⁴
Section Modulus	$S =$	22.7 in³
Base Allowable Bending Stress	$F_b =$	675 psi
Base Allowable Shear Stress	$F_v =$	150 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	405 psi
True Modulus of Elasticity	$E_{true} =$	1 200 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 200 000 psi
Modulus of Elasticity for Deflections	$E =$	1 200 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 200 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} =$	1
Incising Factor	$C_{i,b} =$	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+} =$	1.15
Governing Beam Stability Factor - Positive Bending	$C_L^{+} =$	0.998
Adjusted Bending Strength - Positive Bending	$F_b'^{+} =$	891 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-} =$	0.9
Governing Beam Stability Factor - Negative Bending	$C_L^{-} =$	0.999
Adjusted Bending Strength - Negative Bending	$F_b'^{-} =$	698 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1.15
Adjusted Shear Strength	$F_v' =$	173 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F_{c\perp}'/C_b =$	405 psi

Comments

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(435) 632-7660 • FAX (801) 255-8071

CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
PAVEMENT & ROOF CONSULTING

PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**17**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

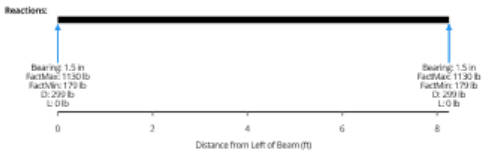
Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB9**	PASS
References:	NDS 2018 (ASD)			

Summary

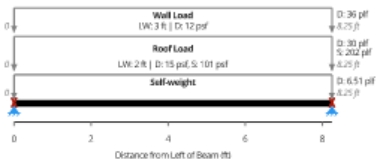
53%	Allowable Bending Moment	$M' = 4390\ \text{lb} \cdot \text{ft}$
30%	Allowable Shear	$V' = 3750\ \text{lb}$
41%	Allowable Bearing Load	$R' = 2730\ \text{lb}$
27%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.113\ \text{in}$
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 874$
4%	Governing Long-Term Deflection	$\delta_{LT} = -0.0203\ \text{in}$
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 4870$
7%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.0407\ \text{in}$
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 2430$



Key Properties

Member		3 plies - 2x8 H-F No. 2
Beam Plan Length	$L_x =$	8.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 32.6\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 143\ \text{in}^4$
Section Modulus	$S = 39.4\ \text{in}^3$
Base Allowable Bending Stress	$F_b = 850\ \text{psi}$
Base Allowable Shear Stress	$F_v = 150\ \text{psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 405\ \text{psi}$
True Modulus of Elasticity	$E_{true} = 1\,300\,000\ \text{psi}$
Apparent Modulus of Elasticity	$E_{app} = 1\,300\,000\ \text{psi}$
Modulus of Elasticity for Deflections	$E = 1\,300\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,300\,000\ \text{psi}$

Section Bending (NDS 2018 2.3)

Size Factor	$C_{Fb} = 1.2$
Incising Factor	$C_{ib} = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{Db} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C^+_L = 0.991$
Adjusted Bending Strength - Positive Bending	$F^{v+}_b = 1340\ \text{psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{Db} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C^-_L = 0.993$
Adjusted Bending Strength - Negative Bending	$F^{v-}_b = 1050\ \text{psi}$

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1.15$
Adjusted Shear Strength	$F'_v = 173\ \text{psi}$

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b = 405\ \text{psi}$

Comments

Wood Beam (ASD) (version 139) — Generic Beam

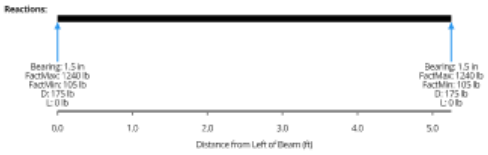
Created with ClearCalcs.com

McNEIL ENGINEERING

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB10**	PASS
References:	NDS 2018 (ASD)			

Summary

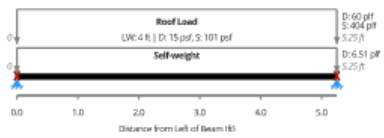
37%	Allowable Bending Moment	$M' = 4400\ \text{lb} \cdot \text{ft}$
33%	Allowable Shear	$V' = 3750\ \text{lb}$
45%	Allowable Bearing Load	$R' = 2730\ \text{lb}$
14%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0372\ \text{in}$
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 1690$
1%	Governing Long-Term Deflection	$\delta_{LT} = -0.00306\ \text{in}$
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 20\,600$
2%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.00612\ \text{in}$
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 10\,300$



Key Properties

Member		3 plies - 2x8 H-F No. 2
Beam Plan Length	$L_X =$	5.25 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 32.6\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 143\ \text{in}^4$
Section Modulus	$S = 39.4\ \text{in}^3$
Base Allowable Bending Stress	$F_b = 850\ \text{psi}$
Base Allowable Shear Stress	$F_v = 150\ \text{psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 405\ \text{psi}$
True Modulus of Elasticity	$E_{true} = 1\,300\,000\ \text{psi}$
Apparent Modulus of Elasticity	$E_{app} = 1\,300\,000\ \text{psi}$
Modulus of Elasticity for Deflections	$E = 1\,300\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,300\,000\ \text{psi}$

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} = 1.2$
Incising Factor	$C_{i,b} = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C^+_L = 0.994$
Adjusted Bending Strength - Positive Bending	$F^{'+}_b = 1340\ \text{psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C^-_L = 0.995$
Adjusted Bending Strength - Negative Bending	$F^{'-}_b = 1050\ \text{psi}$

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1.15$
Adjusted Shear Strength	$F'_v = 173\ \text{psi}$

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b = 405\ \text{psi}$

Comments

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CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
PAVEMENT & ROOF CONSULTING

PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**19**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Wood Beam (ASD) (version 139) — Generic Beam

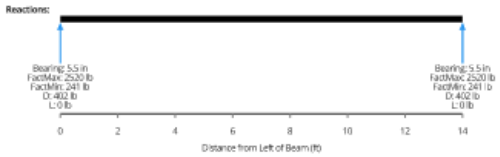
Created with ClearCalcs.com

McNEIL ENGINEERING

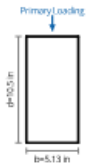
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**RB11**	PASS
References:	NDS 2018 (ASD)			

Summary

52%	Allowable Bending Moment	$M' =$	17 000 lb · ft
26%	Allowable Shear	$V' =$	9570 lb
26%	Allowable Bearing Load	$R' =$	9710 lb
50%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.353 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	476
7%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.0669 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	2510
7%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.0669 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	2510

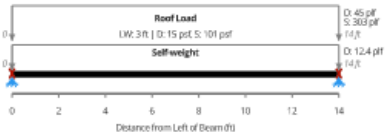


Key Properties



Member		5-1/8x10-1/2 24F-V4 DF
Beam Plan Length	$L_X =$	14 ft
Continuous Bracing for Lateral Torsional Buckling		No Continuous Bracing

Loads



Design Conditions

Design Code for Load Combinations		International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	53.8 in²
Strong Axis Moment of Inertia	$I_{xx} =$	494 in⁴
Section Modulus	$S =$	94.2 in³
Base Allowable Bending Stress	$F_b =$	2400 psi
Base Allowable Shear Stress	$F_v =$	265 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	650 psi
True Modulus of Elasticity	$E_{true} =$	1 900 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 800 000 psi
Modulus of Elasticity for Deflections	$E =$	1 800 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 500 000 psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V =$	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} =$	1.15
Governing Beam Stability Factor - Positive Bending	$C^+_L =$	0.98
Adjusted Bending Strength - Positive Bending	$F^{'+}_b =$	2160 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} =$	0.9
Governing Beam Stability Factor - Negative Bending	$C^-_L =$	0.99
Adjusted Bending Strength - Negative Bending	$F^{'-}_b =$	1320 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1.15
Adjusted Shear Strength	$F'_v =$	267 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$	345 psi

Comments

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SHEET	DATE	PROJECT
20	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Framing Calculations

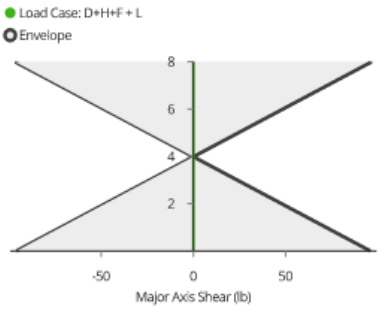
Wood Column (ASD) (version 109) — Exterior Stud Wall — Created with ClearCalcs.com

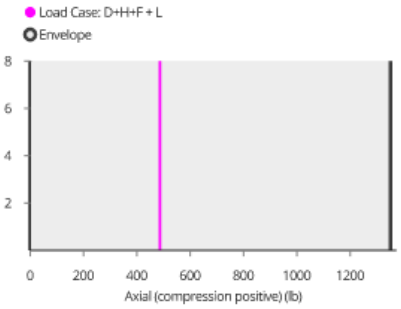
McNEIL ENGINEERING

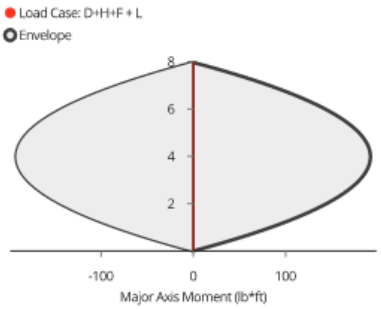
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**Exterior wall Framing**	PASS
References:	NDS 2018 (ASD)			

Summary

23%	Allowable Compressive Load (X-Axis Buckling)	$P'_x = 5850$ lb
18%	Allowable Compressive Load (Y-Axis Buckling)	$P'_y = 7590$ lb
25%	Allowable X-Axis Moment	$M'_x = 783$ lb · ft
25%	Combined Compression / Bending	Int. $= 0.254$
16%	Governing Live / Short-Term X-Axis Deflection	$\delta_{x,ST} = 0.062$ in
	Critical Live / Short-Term X-Axis Deflection Ratio	$(L/)_{x,ST} = 1550$
0%	Governing Long-Term X-Axis Deflection	$\delta_{x,LT} = 0$ in
	Critical Long-Term X-Axis Deflection Ratio	$(L/)_{x,LT} = 0$
	Critical Simplified DL+LL X-Axis Deflection Ratio	$(L/)_{x,DL+LL} = 0$







Key Properties

Member		2x6 H-F Stud
Column Height	$L =$	8 ft
Continuous Bracing for Strong Axis Buckling		No
Continuous Bracing for Weak Axis Buckling		Yes
Continuous Bracing for Lateral Torsional Buckling		Yes

Loads

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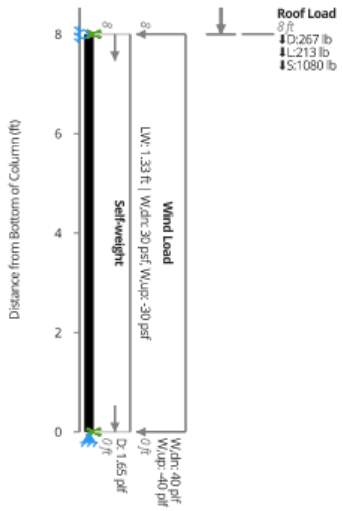
PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**21**
	DESIGNED BY **2 2 4 1 1** **A B S**	PROJECT NO. **22411**



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 8.25\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 20.8\ \text{in}^4$
Weak Axis Moment of Inertia	$I_{yy} = 1.55\ \text{in}^4$
Base Allowable Compression Stress	$F_c = 800\ \text{psi}$
Base Allowable Bending Stress (X-axis)	$F_{bx} = 675\ \text{psi}$
Base Allowable Bending Stress (Y-axis)	$F_{by} = 675\ \text{psi}$
Base Minimum Elastic Modulus (X-axis)	$E_{minx} = 440\,000\ \text{psi}$
Base Minimum Elastic Modulus (Y-axis)	$E_{miny} = 440\,000\ \text{psi}$
True Modulus of Elasticity (X-Axis)	$E_{x,true} = 1\,200\,000\ \text{psi}$
Apparent Modulus of Elasticity (X-Axis)	$E_{x,app} = 1\,200\,000\ \text{psi}$
Modulus of Elasticity for Deflections (X-Axis)	$E_x = 1\,200\,000\ \text{psi}$
True Modulus of Elasticity (Y-Axis)	$E_{y,true} = 1\,200\,000\ \text{psi}$
Apparent Modulus of Elasticity (Y-Axis)	$E_{y,app} = 1\,200\,000\ \text{psi}$
Modulus of Elasticity for Deflections (Y-Axis)	$E_y = 1\,200\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Minimum Elastic Modulus (X-axis)	$E'_{min,x} = 440\,000\ \text{psi}$
Adjusted Minimum Elastic Modulus (Y-axis)	$E'_{min,y} = 440\,000\ \text{psi}$
Adjusted Modulus of Elasticity (X-axis)	$E'_x = 1\,200\,000\ \text{psi}$
Adjusted Modulus of Elasticity (Y-axis)	$E'_y = 1\,200\,000\ \text{psi}$

Capacity in Pure Axial Loading (NDS 2018 Section 3.7)

Size Factor	$C_{F,c} = 1$
Fully Braced Compression Strength - Pure Axial Loading	$F_c^* = 920\ \text{psi}$
Governing Slenderness - X-axis	$(\ell_e/d) = 17.5$
Governing Slenderness - Y-axis	$(\ell_e/b) = 0$
Adjusted Compression Strength (X-axis)	$F'_{c,x} = 709\ \text{psi}$
Adjusted Compression Strength (Y-axis)	$F'_{c,y} = 920\ \text{psi}$

Capacity in Pure Bending (NDS 2018 Section 3.3)

Governing Duration Factor - Pure X-Axis Bending	$C_{D,x} = 1.6$
Governing Duration Factor - Pure Y-Axis Bending	$C_{D,y} = 0.9$
Size Factor	$C_{F,b} = 1$
Governing Beam Stability Factor - Pure Bending	$C_L = 1$
Allowable Bending Stress (X-axis)	$F'_{bx} = 1240\ \text{psi}$
Allowable Bending Stress (Y-Axis)	$F'_{by} = 803\ \text{psi}$

Combined Bending and Compression (NDS 2018 Section 3.9)

Fully Braced Compression Strength	$F^*_{c,int} = 1280\ \text{psi}$
Adjusted Compression Strength (X-axis)	$F'_{cx,int} = 850\ \text{psi}$
Adjusted Compression Strength (Y-axis)	$F'_{cy,int} = 1280\ \text{psi}$
Adjusted Compression Strength - Interaction	$F'_{c,int} = 850\ \text{psi}$
Governing Beam Stability Factor - Interaction	$C_{L,int} = 1$
Allowable Bending Stress (X-axis)	$F'_{bx,int} = 1240\ \text{psi}$
Allowable Bending Stress (Y-Axis)	$F'_{by,int} = 1430\ \text{psi}$

Shear Design (NDS 2018 3.4)

7% Shear Capacity (X-axis)	$V'_{nx} = 1320\ \text{lb}$

Comments

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SHEET	DATE	PROJECT
22	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Column Calculations

Wood Column (ASD) (version 109) — Generic Concentrically-Loaded Column — Created with ClearCalcs.com

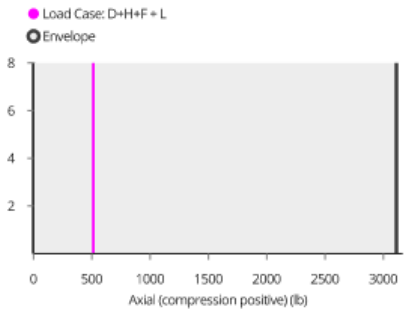
McNEIL ENGINEERING

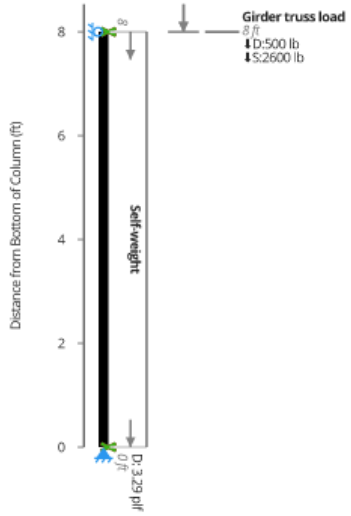
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**C1 Below Girder Truss**	PASS
References:	NDS 2018 (ASD)			

Summary

27% Allowable Compressive Load (X-Axis Buckling) $P'_x = 11\,700$ lb

34% Allowable Compressive Load (Y-Axis Buckling) $P'_y = 9110$ lb





Key Properties

Member		2 plies - 2x6 H-F Stud
Connection Between Plies		Nailed
Column Height	$L =$	8 ft
Continuous Bracing for Strong Axis Buckling		No
Continuous Bracing for Weak Axis Buckling		Yes
Continuous Bracing for Lateral Torsional Buckling		Yes

Weak Axis Loads

Loads

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CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
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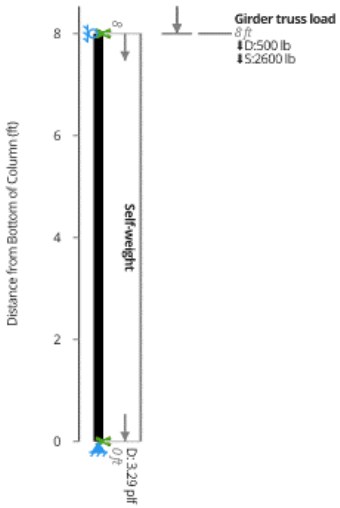
PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**23**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 16.5\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 41.6\ \text{in}^4$
Weak Axis Moment of Inertia	$I_{yy} = 12.4\ \text{in}^4$

Base Allowable Compression Stress	$F_c = 800\ \text{psi}$
Base Allowable Bending Stress (X-axis)	$F_{bx} = 675\ \text{psi}$
Base Allowable Bending Stress (Y-axis)	$F_{by} = 675\ \text{psi}$
Base Minimum Elastic Modulus (X-axis)	$E_{minx} = 440\,000\ \text{psi}$
Base Minimum Elastic Modulus (Y-axis)	$E_{miny} = 440\,000\ \text{psi}$
True Modulus of Elasticity (X-Axis)	$E_{x,true} = 1\,200\,000\ \text{psi}$
Apparent Modulus of Elasticity (X-Axis)	$E_{x,app} = 1\,200\,000\ \text{psi}$
Modulus of Elasticity for Deflections (X-Axis)	$E_x = 1\,200\,000\ \text{psi}$
True Modulus of Elasticity (Y-Axis)	$E_{y,true} = 1\,200\,000\ \text{psi}$
Apparent Modulus of Elasticity (Y-Axis)	$E_{y,app} = 1\,200\,000\ \text{psi}$
Modulus of Elasticity for Deflections (Y-Axis)	$E_y = 1\,200\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Minimum Elastic Modulus (X-axis)	$E'_{min,x} = 440\,000\ \text{psi}$
Adjusted Minimum Elastic Modulus (Y-axis)	$E'_{min,y} = 440\,000\ \text{psi}$
Adjusted Modulus of Elasticity (X-axis)	$E'_x = 1\,200\,000\ \text{psi}$
Adjusted Modulus of Elasticity (Y-axis)	$E'_y = 1\,200\,000\ \text{psi}$

Capacity in Pure Axial Loading (NDS 2018 Section 3.7)

Size Factor	$C_{F,c} = 1$
Fully Braced Compression Strength - Pure Axial Loading	$F_c^* = 920\ \text{psi}$
Governing Slenderness - X-axis	$(\ell_e/d) = 17.5$
Governing Slenderness - Y-axis	$(\ell_e/b) = 0$
Adjusted Compression Strength (X-axis)	$F'_{c,x} = 709\ \text{psi}$
Adjusted Compression Strength (Y-axis)	$F'_{c,y} = 552\ \text{psi}$

Comments

Wood Column (ASD) (version 109) — Generic Concentrically-Loaded Column — Created with ClearCalcs.com

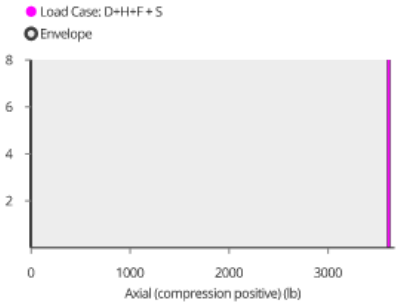
McNEIL ENGINEERING

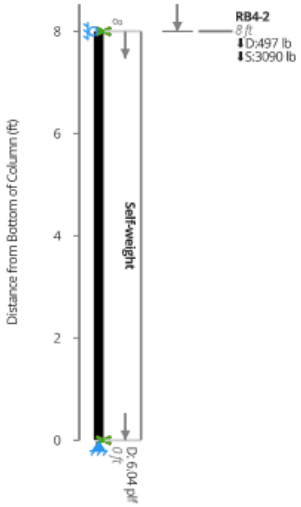
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**C2 Below Deck Columns**	PASS
References:	NDS 2018 (ASD)			

Summary

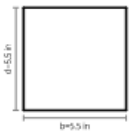
24% Allowable Compressive Load (X-Axis Buckling) $P'_x = 15\,400$ lb

20% Allowable Compressive Load (Y-Axis Buckling) $P'_y = 18\,200$ lb





Key Properties



Member		6x6 H-F No. 2
Column Height	$L =$	8 ft
Continuous Bracing for Strong Axis Buckling		No
Continuous Bracing for Weak Axis Buckling		Yes
Continuous Bracing for Lateral Torsional Buckling		Yes

Loads

Weak Axis Loads

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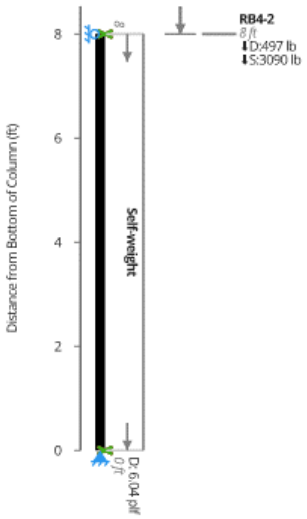
PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**25**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 30.2\ \text{in}^2$
Strong Axis Moment of Inertia	$I_{zz} = 76.3\ \text{in}^4$
Weak Axis Moment of Inertia	$I_{yy} = 76.3\ \text{in}^4$

Base Allowable Compression Stress	$F_c = 575\ \text{psi}$
Base Allowable Bending Stress (X-axis)	$F_{bx} = 575\ \text{psi}$
Base Allowable Bending Stress (Y-axis)	$F_{by} = 575\ \text{psi}$
Base Minimum Elastic Modulus (X-axis)	$E_{minx} = 400\,000\ \text{psi}$
Base Minimum Elastic Modulus (Y-axis)	$E_{miny} = 400\,000\ \text{psi}$
True Modulus of Elasticity (X-Axis)	$E_{x,true} = 1\,100\,000\ \text{psi}$
Apparent Modulus of Elasticity (X-Axis)	$E_{x,app} = 1\,100\,000\ \text{psi}$
Modulus of Elasticity for Deflections (X-Axis)	$E_x = 1\,100\,000\ \text{psi}$
True Modulus of Elasticity (Y-Axis)	$E_{y,true} = 1\,100\,000\ \text{psi}$
Apparent Modulus of Elasticity (Y-Axis)	$E_{y,app} = 1\,100\,000\ \text{psi}$
Modulus of Elasticity for Deflections (Y-Axis)	$E_y = 1\,100\,000\ \text{psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Minimum Elastic Modulus (X-axis)	$E'_{min,x} = 400\,000\ \text{psi}$
Adjusted Minimum Elastic Modulus (Y-axis)	$E'_{min,y} = 400\,000\ \text{psi}$
Adjusted Modulus of Elasticity (X-axis)	$E'_x = 1\,100\,000\ \text{psi}$
Adjusted Modulus of Elasticity (Y-axis)	$E'_y = 1\,100\,000\ \text{psi}$

Capacity in Pure Axial Loading (NDS 2018 Section 3.7)

Size Factor	$C_{F,c} = 1$
Fully Braced Compression Strength - Pure Axial Loading	$F_c^* = 602\ \text{psi}$
Governing Slenderness - X-axis	$(\ell_e/d) = 17.5$
Governing Slenderness - Y-axis	$(\ell_e/b) = 0$
Adjusted Compression Strength (X-axis)	$F'_{c,x} = 510\ \text{psi}$
Adjusted Compression Strength (Y-axis)	$F'_{c,y} = 602\ \text{psi}$

Comments

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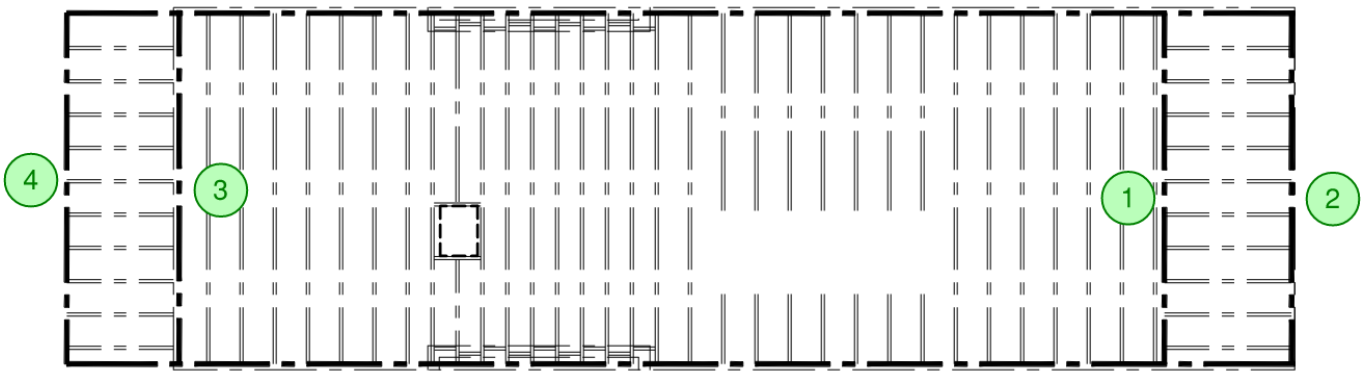
(435) 632-7660 • FAX (801) 255-8071

SHEET	DATE	PROJECT
26	**June, 22**	KEB Homes, Inc.
PROJECT NO. **22411**	DESIGNED BY **A B S**	**Jones Sledhaus**
		28935 Yellow Jacket Dr., Oak Creek, Colorado

Main Floor Beam Key Plan



FB-4 beam for optional back deck.

Main Floor Beam Calculations

Wood Beam (ASD) (version 139) — Generic Beam

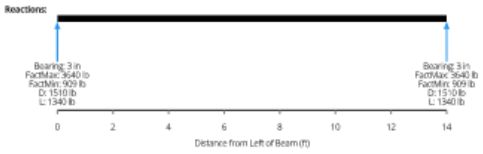
Created with ClearCalcs.com

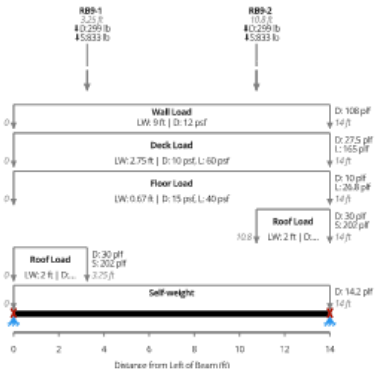
McNEIL ENGINEERING

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**FB1**	PASS
References:	NDS 2018 (ASD)			

Summary

50%	Allowable Bending Moment	$M' = 22\,600$ lb · ft
33%	Allowable Shear	$V' = 10\,900$ lb
69%	Allowable Bearing Load	$R' = 5300$ lb
43%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.15$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 1120$
67%	Governing Long-Term Deflection	$\delta_{LT} = -0.315$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 533$
34%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.315$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 533$





Key Properties

Member		5-1/8x12 24F-V4 DF
Beam Plan Length	$L_X =$	14 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads

Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 61.5$ in^2
Strong Axis Moment of Inertia	$I_{xx} = 738$ in^4
Section Modulus	$S = 123$ in^3
Base Allowable Bending Stress	$F_b = 2400$ psi
Base Allowable Shear Stress	$F_v = 265$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 650$ psi
True Modulus of Elasticity	$E_{true} = 1\,900\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,800\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,800\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,500\,000$ psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C^+_L = 1$
Adjusted Bending Strength - Positive Bending	$F'^+_b = 2210$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C^-_L = 0.987$

Wood Beam (ASD) (version 139) — Generic Beam

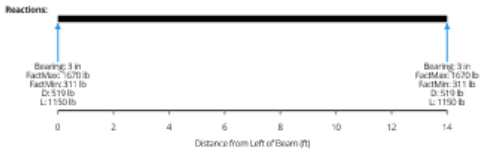
Created with ClearCalcs.com

McNEIL ENGINEERING

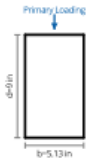
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**FB2**	PASS
References:	NDS 2018 (ASD)			

Summary

53%	Allowable Bending Moment	$M' = 11\,100$ lb · ft
23%	Allowable Shear	$V' = 7130$ lb
32%	Allowable Bearing Load	$R' = 5300$ lb
87%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.305$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 550$
95%	Governing Long-Term Deflection	$\delta_{LT} = -0.443$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 379$
47%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.443$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 379$

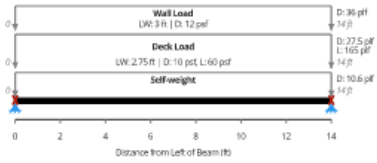


Key Properties



Member		5-1/8x9 24F-V4 DF
Beam Plan Length	$L_X =$	14 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 46.1$ in²
Strong Axis Moment of Inertia	$I_{xx} = 311$ in⁴
Section Modulus	$S = 69.2$ in³
Base Allowable Bending Stress	$F_b = 2400$ psi
Base Allowable Shear Stress	$F_v = 265$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 650$ psi
True Modulus of Elasticity	$E_{true} = 1\,900\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,800\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,800\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,500\,000$ psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} = 1$
Governing Beam Stability Factor - Positive Bending	$C^+_L = 1$
Adjusted Bending Strength - Positive Bending	$F^{+}_b = 1920$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C^-_L = 0.991$
Adjusted Bending Strength - Negative Bending	$F^{-}_b = 1320$ psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F'_v = 232$ psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b = 345$ psi

Comments

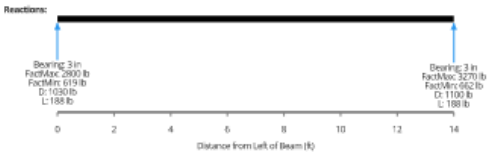
Wood Beam (ASD) (version 139) — Generic Beam

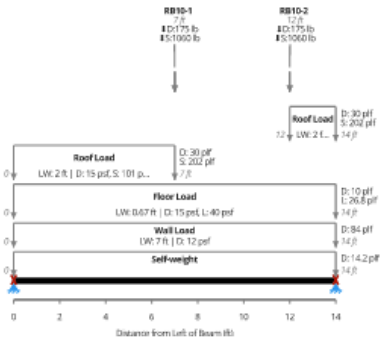
Created with ClearCalcs.com

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**FB3**	PASS
References:	NDS 2018 (ASD)			

Summary

50%	Allowable Bending Moment	$M' = 22\,600$ lb · ft
30%	Allowable Shear	$V' = 10\,900$ lb
62%	Allowable Bearing Load	$R' = 5300$ lb
63%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.221$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 761$
30%	Governing Long-Term Deflection	$\delta_{LT} = -0.14$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 1200$
15%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.14$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 1200$





Key Properties

Member		5-1/8x12 24F-V4 DF
Beam Plan Length	$L_X =$	14 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads

Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 61.5$ in^2
Strong Axis Moment of Inertia	$I_{xx} = 738$ in^4
Section Modulus	$S = 123$ in^3
Base Allowable Bending Stress	$F_b = 2400$ psi
Base Allowable Shear Stress	$F_v = 265$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 650$ psi
True Modulus of Elasticity	$E_{true} = 1\,900\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,800\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,800\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,500\,000$ psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+} = 1.15$
Governing Beam Stability Factor - Positive Bending	$C_L^{+} = 1$
Adjusted Bending Strength - Positive Bending	$F_b^{+} = 2210$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^{-} = 0.988$
Adjusted Bending Strength - Negative Bending	$F_b^{-} = 1320$ psi

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SHEET	DATE	PROJECT
30	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

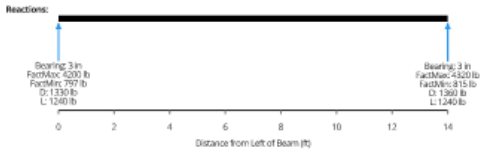
Wood Beam (ASD) (version 139) — Generic Beam

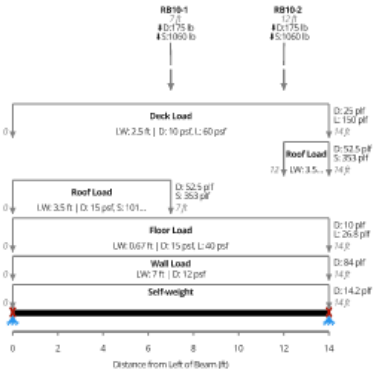
Created with ClearCalcs.com

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**FB3 Deck Option**	PASS
References:	NDS 2018 (ASD)			

Summary

67%	Allowable Bending Moment	M' =	22 600 lb · ft
40%	Allowable Shear	V' =	10 900 lb
82%	Allowable Bearing Load	R' =	5300 lb
82%	Governing Live / Short-Term Deflection	δ_{ST} =	−0.286 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST}$ =	588
61%	Governing Long-Term Deflection	δ_{LT} =	−0.287 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT}$ =	586
31%	Governing Simplified DL+LL Deflection	δ_{DL+LL} =	−0.287 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL}$ =	586





Key Properties

Member		5-1/8x12 24F-V4 DF
Beam Plan Length	L_X =	14 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads

Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	A =	61.5 in²
Strong Axis Moment of Inertia	I_{xx} =	738 in⁴
Section Modulus	S =	123 in³
Base Allowable Bending Stress	F_b =	2400 psi
Base Allowable Shear Stress	F_v =	265 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp}$ =	650 psi
True Modulus of Elasticity	E_{true} =	1 900 000 psi
Apparent Modulus of Elasticity	E_{app} =	1 800 000 psi
Modulus of Elasticity for Deflections	E =	1 800 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	E' =	1 500 000 psi

Section Bending (NDS 2018 2.3)

Volume Factor	C_V =	1

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+}$ =	1.15
Governing Beam Stability Factor - Positive Bending	C_L^{+} =	1
Adjusted Bending Strength - Positive Bending	F_b^{+} =	2210 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-}$ =	0.9
Governing Beam Stability Factor - Negative Bending	C_L^{-} =	0.988

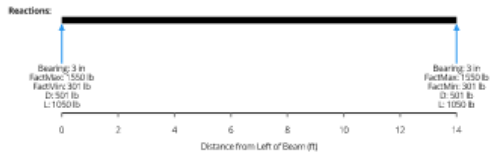
Wood Beam (ASD) (version 139) — Generic Beam

Created with ClearCalcs.com

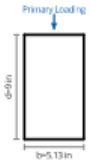
Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**FB4**	PASS
References:	NDS 2018 (ASD)			

Summary

49%	Allowable Bending Moment	$M' = 11\,100$ lb · ft
22%	Allowable Shear	$V' = 7130$ lb
29%	Allowable Bearing Load	$R' = 5300$ lb
79%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.278$ in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} = 605$
88%	Governing Long-Term Deflection	$\delta_{LT} = -0.41$ in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} = 409$
44%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} = -0.41$ in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} = 409$

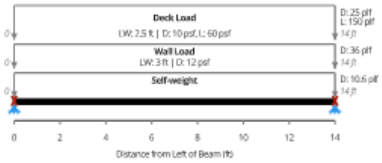


Key Properties



Member		5-1/8x9 24F-V4 DF
Beam Plan Length	$L_X =$	14 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 46.1$ in²
Strong Axis Moment of Inertia	$I_{xx} = 311$ in⁴
Section Modulus	$S = 69.2$ in³
Base Allowable Bending Stress	$F_b = 2400$ psi
Base Allowable Shear Stress	$F_v = 265$ psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 650$ psi
True Modulus of Elasticity	$E_{true} = 1\,900\,000$ psi
Apparent Modulus of Elasticity	$E_{app} = 1\,800\,000$ psi
Modulus of Elasticity for Deflections	$E = 1\,800\,000$ psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1\,500\,000$ psi

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^{+} = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^{+} = 1$
Adjusted Bending Strength - Positive Bending	$F_b^{+'} = 1920$ psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^{-} = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^{-} = 0.991$
Adjusted Bending Strength - Negative Bending	$F_b^{-'} = 1320$ psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 232$ psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F_{c\perp}'/C_b = 345$ psi

Comments

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SHEET	DATE	PROJECT
32	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Framing Calculations

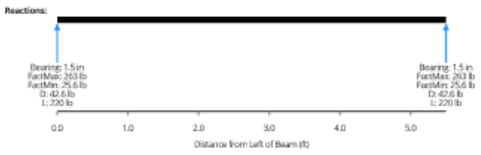
Wood Beam (ASD) (version 139) — Floor Joist — Created with ClearCalcs.com

McNEIL ENGINEERING

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**Deck Joist**	PASS
References:	NDS 2018 (ASD)			

Summary

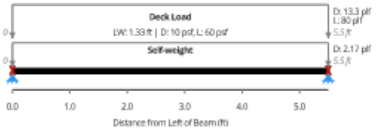
35%	Allowable Bending Moment	$M' =$	1030 lb · ft
31%	Allowable Shear	$V' =$	844 lb
43%	Allowable Bearing Load	$R' =$	611 lb
17%	Governing Live / Short-Term Deflection	$\delta_{ST} =$	−0.0311 in
	Governing Live / Short-Term Deflection Ratio	$(L/)_{ST} =$	2120
14%	Governing Long-Term Deflection	$\delta_{LT} =$	−0.0371 in
	Governing Long-Term Deflection Ratio	$(L/)_{LT} =$	1780
10%	Governing Simplified DL+LL Deflection	$\delta_{DL+LL} =$	−0.0371 in
	Governing Simplified DL+LL Deflection Ratio	$(L/)_{DL+LL} =$	1780



Key Properties

Member		2x8 H-F No. 2
Beam Plan Length	$L_X =$	5.5 ft
Continuous Bracing for Lateral Torsional Buckling		Top Braced

Loads



Design Conditions

Design Code for Load Combinations	International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A =$	10.9 in²
Strong Axis Moment of Inertia	$I_{xx} =$	47.6 in⁴
Section Modulus	$S =$	13.1 in³
Base Allowable Bending Stress	$F_b =$	850 psi
Base Allowable Shear Stress	$F_v =$	150 psi
Base Perpendicular Compression Allowable Stress	$F_{c\perp} =$	405 psi
True Modulus of Elasticity	$E_{true} =$	1 300 000 psi
Apparent Modulus of Elasticity	$E_{app} =$	1 300 000 psi
Modulus of Elasticity for Deflections	$E =$	1 300 000 psi

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' =$	1 110 000 psi

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} =$	1.2
Incising Factor	$C_{i,b} =$	0.8

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C^+_{D,b} =$	1
Governing Beam Stability Factor - Positive Bending	$C^+_L =$	1
Adjusted Bending Strength - Positive Bending	$F'^+_b =$	938 psi

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C^-_{D,b} =$	0.9
Governing Beam Stability Factor - Negative Bending	$C^-_L =$	0.898
Adjusted Bending Strength - Negative Bending	$F'^-_b =$	759 psi

Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D =$	1
Adjusted Shear Strength	$F'_v =$	116 psi

Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b =$	271 psi

Comments

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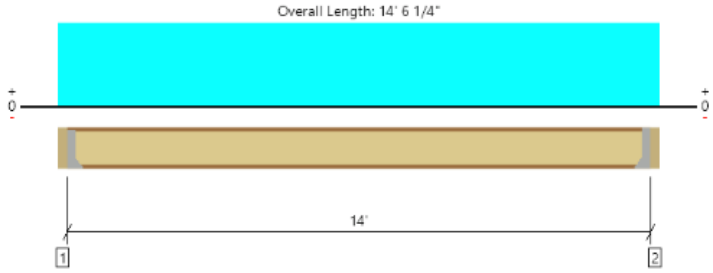
PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**33**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

FORTE WEB

MEMBER REPORT

PASSED

Level, Typical Floor Joist
1 piece(s) 11 7/8" TJI® 110 @ 16" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	513 @ 3 1/8"	910 (1.75")	Passed (56%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	513 @ 3 1/8"	1560	Passed (33%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1797 @ 7' 3 1/8"	3160	Passed (57%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.161 @ 7' 3 1/8"	0.350	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.221 @ 7' 3 1/8"	0.700	Passed (L/760)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	46	45	Passed	--	--

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	1.75" / - [2]	145	387	532	See note [1]
2 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	1.75" / - [2]	145	387	532	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 3" o/c	
Bottom Edge (Lu)	14' o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	
2 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Load	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 14' 6 1/4"	16"	15.0	40.0	Default Load

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Anthony Schmid McNeil Enigneering (435) 632-7660 anthony@mcneileng.com	

Weyerhaeuser

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ForteWEB v3.2, Engine: V8.2.0.17, Data: V8.1.0.16
File Name: 22411-Jones Sledhaus

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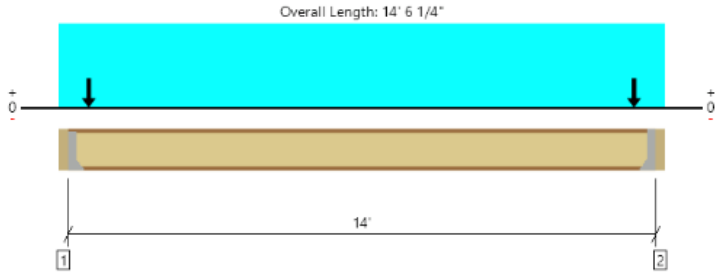
SHEET	DATE	PROJECT
34	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

FORTE WEB

MEMBER REPORT

PASSED

Level, Floor Joist Below Wall
1 piece(s) 11 7/8" TJI® 110 @ 12" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1239 @ 3 1/8"	1239 (2.39")	Passed (100%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1239 @ 3 1/8"	1794	Passed (69%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1553 @ 7' 3 1/4"	3160	Passed (49%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.143 @ 7' 3 3/16"	0.350	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.209 @ 7' 3 3/16"	0.700	Passed (L/806)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
TJ-Pro™ Rating	52	40	Passed	--	--

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	2.39" / - [2]	369	441	735	1545	See note [1]
2 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	2.38" / - [2]	369	440	733	1542	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 7" o/c	
Bottom Edge (Lu)	14' o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	MIU1.81/11	2.50"	N/A	20-10dx1.5	2-10dx1.5	
2 - Face Mount Hanger	MIU1.81/11	2.50"	N/A	20-10dx1.5	2-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 14' 6 1/4"	12"	15.0	40.0	-	Default Load
2 - Point (PLF)	9"	12"	260.0	150.0	734.0	
3 - Point (PLF)	13' 9"	12"	260.0	150.0	734.0	

ForteWEB Software Operator	Job Notes
Anthony Schmid McNeil Engineering (435) 632-7660 anthony@mcneileng.com	

Weyerhaeuser

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File Name: 22411-Jones Sledhaus

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CIVIL, STRUCTURAL ENGINEERING & LAND SURVEYING
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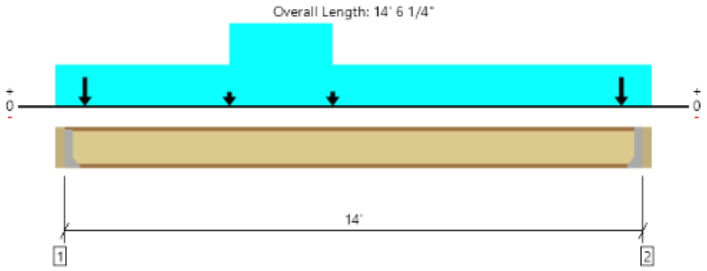
PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**35**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

FORTE WEB

MEMBER REPORT

PASSED

Level, Floor joist at crawl space
2 piece(s) 11 7/8" TJI® 110 @ 12" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1451 @ 3 1/8"	2093 (1.75")	Passed (69%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1451 @ 3 1/8"	3588	Passed (40%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	2554 @ 6' 9"	6320	Passed (40%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.116 @ 7' 1 9/16"	0.350	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.169 @ 7' 1 9/16"	0.700	Passed (L/991)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
TJ-Pro™ Rating	61	40	Passed	--	--

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	1.75" / - [2]	437	589	779	1805	See note [1]
2 - Hanger on 11 7/8" GLB beam	3.13"	Hanger[1]	1.75" / - [2]	410	533	756	1699	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	14' o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	IUS3.56/11.88	2.00"	N/A	12-10d	2-Strong-Grip	
2 - Face Mount Hanger	IUS3.56/11.88	2.00"	N/A	12-10d	2-Strong-Grip	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 14' 6 1/4"	12"	15.0	40.0	-	Default Load
2 - Point (PLF)	9"	12"	260.0	150.0	734.0	
3 - Point (PLF)	13' 9"	12"	260.0	150.0	734.0	
4 - Point (lb)	4' 3"	N/A	33	56	43	
5 - Point (lb)	6' 9"	N/A	39	85	24	
6 - Uniform (PLF)	4' 3" to 6' 9"	N/A	15.0	40.0	-	

ForteWEB Software Operator	Job Notes
Anthony Schmid McNeil Engineering (435) 632-7660 anthony@mcneileng.com	

Weyerhaeuser

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SHEET	DATE	PROJECT
36	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Footing and Foundation Calculations

Continuous Footing Calculations

Wall Footing (version 53) — Created with ClearCalcs.com

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**Continuous footing**	PASS
References:	ACI 318-14			

Summary

71%	Allowable Gross Soil Bearing Stress	$q_a = 1500$ psf
10%	Factored Moment Capacity	$\phi M_n = 1600$ lb-ft/ft
0%	Factored One-Way Shear Capacity	$\phi V_n = 3840$ plf
	Stability	Status = Footing in Total Compression

Footing Properties

Footing Width	$B = 1.67$ ft
Footing Thickness	$H = 10$ in
Wall Type	Concrete
Wall Width	$b = 8$ in
Concrete Strength	$f'_c = 2500$ psi
Volume of Concrete	$V_c = 0.0515$ yd³/ft

Soil Properties

Allowable Soil Gross Bearing Capacity	$q_a = 1500$ psf
Lateral Sliding Coefficient of Friction	$\mu = 0.3$

Bottom Reinforcement

Concrete Cover	cover = 3 in
Reinforcement Yield Strength	$f_y = 60\,000$ psi

Design Criteria

Design Code for Load Combinations	International Building Code (IBC) 2018
Sliding and Overturning Minimum Factor of Safety	$FS_{min} = 1.5$

Comments

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PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**37**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Strip Footing Overturning check

E=3200 lbs
W=4400 lbs
Wind Governs Load per foot =4400 lbs/40 ft=110 plf each footing takes half the load W=55 plf
Moment=4.5 ft*55 plf=248 lb-ft per footing of length.

Eccentric Loading on Rectangular Footings

Reference - Handbook of Concrete Engineering by Mark Fintel

Aug-19

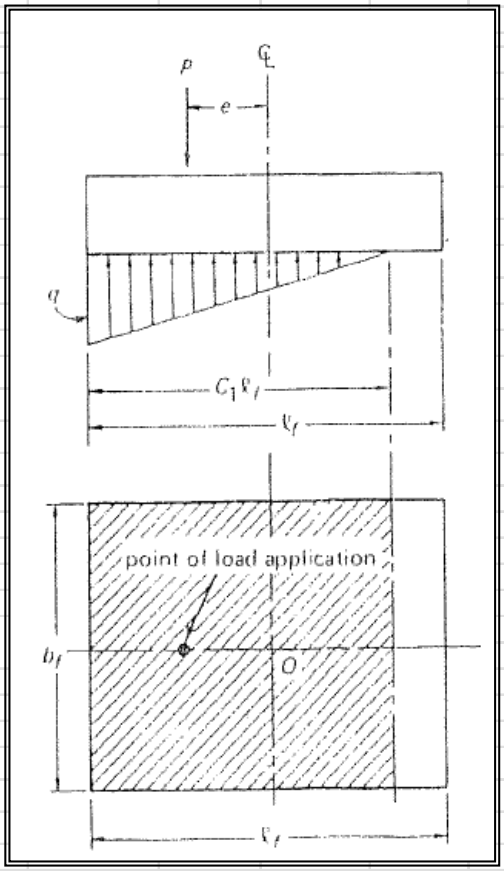
Cont. Ftg Check With Moment 0.6D+0.6W

I. Footing Loads and Properties

Footing Length/Width	l_f	2	ft	
Footing Width	b_f	1	ft	
Footing Depth		10	in	
Area of Footing	A_{FTG}	2.0	ft^2	
Unit Weight of Concrete		87	pcf	
Concrete Compressive Strength		2500	psi	
Axial Load (service)	P	232	lbs	
Weight of Footing	P_{FTG}	145	lbs	
Additional Axial Loads (soil, etc.)	$P_{additional}$	250	lbs	
Total Axial Load (service)	P_{TOTAL}	627	lbs	
Overturning Moment (service)	M_{OTM}	350	ft-lbs	
Eccentricity	e	0.56	ft	
Allowable Bearing Pressure		1500	psf	Per IBC
Allowable Bearing Pressure Increase		Yes		
1.33 x (Allowable Bearing Pressure)		1995	psf	Per IBC
	e/l_f	0.279		
	C_1	0.663		see diagram
	C_2	3.018		

II. Footing Loading and Overturning Resistance

P_{TOTAL}/A_{FTG} =	q_p	314	psf	
	$C_1 d_f$	1.325	ft	
Total Bearing Pressure $C_2 q_p$ =	q	946	psf	**O.K.**
Overturning Resistance Moment Arm		0.90	ft	
Total Overturning Resistance		564	ft-lbs	**O.K.**
Overturning Factor of Safety		1.61		**O.K.**



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SHEET	DATE	PROJECT
38	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

Eccentric Loading on Rectangular Footings

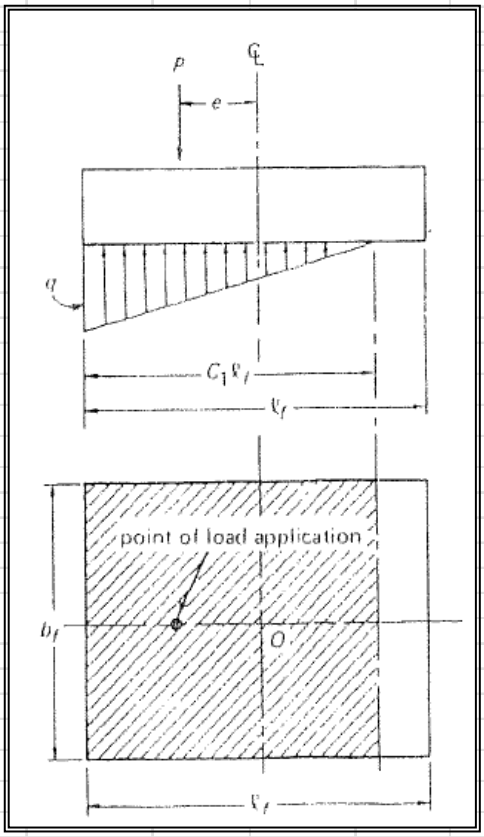
Reference - Handbook of Concrete Engineering by Mark Fintel

Aug-19

Cont. With Moment D+0.75LL+0.75S+0.75(0.6W)

I. Footing Loads and Properties

Footing Length/Width	l_f	2	ft	
Footing Width	b_f	1	ft	
Footing Depth		10	in	
Area of Footing	A_{FTG}	2.0	ft^2	
Unit Weight of Concrete		145	pcf	
Concrete Compressive Strength		2500	psi	
Axial Load (service)	P	1605	lbs	
Weight of Footing	P_{FTG}	242	lbs	
Additional Axial Loads (soil, etc.)	$P_{additional}$	440	lbs	
Total Axial Load (service)	P_{TOTAL}	2287	lbs	
Overturning Moment (service)	M_{OTM}	350	ft-lbs	
Eccentricity	e	0.15	ft	
Allowable Bearing Pressure		1500	psf	Per IBC
Allowable Bearing Pressure Increase		Yes		
1.33 x (Allowable Bearing Pressure)		1995	psf	Per IBC
	e/l_f	0.077		
	C_1	1.000		see diagram
	C_2	1.459		



II. Footing Loading and Overturning Resistance

P_{TOTAL}/A_{FTG} =	q_p	1143	psf		
	$C_1 d_f$	2.000	ft		
Total Bearing Pressure $C_2 q_p$ =	q	1668	psf	**O.K.**	
Overturning Resistance Moment Arm		0.90	ft		
Total Overturning Resistance		2058	ft-lbs	**O.K.**	
Overturning Factor of Safety		5.88		**O.K.**	

:

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PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**39**
	DESIGNED BY **2 2 4 1 1** **A B S**	PROJECT NO. **22411**

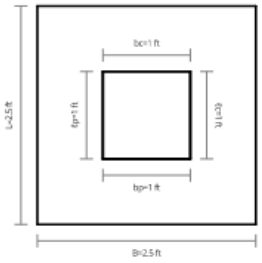
Spot Footing Calculations

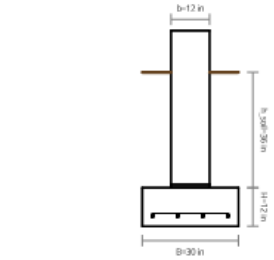
Spread Footing (version 60) — Created with ClearCalcs.com

Client:	Irontown Homes	**Date:**	Jun 15, 2022	
Author:	Anthony Schmid	**Job #:**	22411	
Project:	Jones Sledhaus	**Subject:**	**Deck Spot Footing**	PASS
References:	ACI 318-14			

Summary

69%	Allowable Gross Soil Bearing Stress	q_a =	1500 psf
13%	Factored Moment Capacity about X-Axis	ϕM_{nx} =	6250 lb · ft
13%	Factored Moment Capacity about Y-Axis	ϕM_{ny} =	6250 lb · ft
1%	Factored One-Way Shear Strength	ϕV_n =	12 000 lb
5%	Two-Way Shear Capacity	ϕv_n =	80 psi
2%	Concrete Bearing Capacity	ϕS_n =	367 000 lb
	Development Length for X-Axis Reinforcement	ℓ_{dx} =	12 in
	Design Passes as Plain Concrete (X-Axis)?	PC_x =	Insufficient development length but passes as plain concrete
	Development Length for Y-Axis Reinforcement	ℓ_{dy} =	12 in
	Design Passes as Plain Concrete (Y-Axis)?	PC_y =	Insufficient development length but passes as plain concrete
	Stability	Status =	Footing in Total Compression





Footing Properties

Concrete Strength	f'_c =	2500 psi
Volume of Concrete	V_c =	0.231 yd³

Soil Properties

Allowable Soil Gross Bearing Capacity	q_a =	1500 psf
Lateral Sliding Coefficient of Friction	μ =	0.3

Bottom Reinforcement

Concrete Cover	cover =	3 in
Reinforcement Yield Strength	f_y =	60 000 psi
Ends of Reinforcement - X-Axis		Straight
Ends of Reinforcement - Y-Axis		Straight

Bottom Reinforcement Depth & Spacing

Steel Area - X-Axis Bending	A_{sx} =	0.8 in²
Steel Area - Y-Axis Bending	A_{sy} =	0.8 in²

Applied Loads

Biaxial Moments Applied	Separately

Design Criteria

Design Code for Load Combinations	International Building Code (IBC) 2018

Negative Bending Flexural Capacity - X-Axis (ACI 318-14, Cl 22.2)

0%	Factored Negative Moment Capacity	ϕM_{nx}^- =	6250 lb · ft

Negative Bending Flexural Capacity - Y-Axis (ACI 318-14, Cl 22.2)

0%	Factored Negative Moment Capacity	ϕM_{ny}^- =	6250 lb · ft

Comments

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SHEET	DATE	PROJECT
40	**June, 22**	KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado
PROJECT NO. **22411**	DESIGNED BY **A B S**	

Pier Footing (version 24) — Created with ClearCalcs.com

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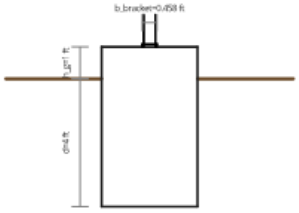
Client:	Irontown Homes	**Date:**	Jun 15, 2022
Author:	Anthony Schmid	**Job #:**	22411
Project:	Jones Sledhaus	**Subject:**	**Pier Footing option deck** PASS
References:	IBC 2018		

Summary

0%	Allowable Lateral Soil Stress	$S_a =$ 133 psf
88%	Allowable Vertical Bearing Pressure	$q_a =$ 1500 psf
1%	Pier Compression and Bending Capacity	Int = 0.00771
0%	Pier Shear Strength	$\phi V_n =$ 45 800 lb
9%	Pier Bearing Capacity	$\phi B_n =$ 77 100 lb



Pier Properties

Pier Diameter	$b =$ 36 in
Embedment Depth	$d =$ 4 ft
Height of Pier Above Ground	$h_g =$ 1 ft
Lateral Constraint at Ground Surface	Nonconstrained

Concrete Properties

Concrete Strength	$f'_c =$ 2500 psi
Volume of Concrete	$V_c =$ 1.31 yd³

Soil Properties

Allowable Soil Gross Bearing Capacity	$q_a =$ 1500 psf
Allowable Lateral Pressure per Unit Depth	$S =$ 100 psf/ft

Design Criteria

Design Code for Load Combinations	International Building Code (IBC) 2018

Comments

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PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**41**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

LATERAL LOADING

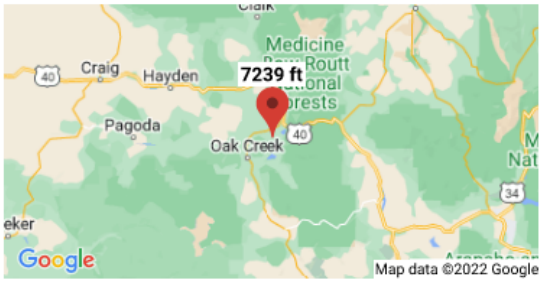
Seismic Loading

5/16/22, 4:10 PM ATC Hazards by Location

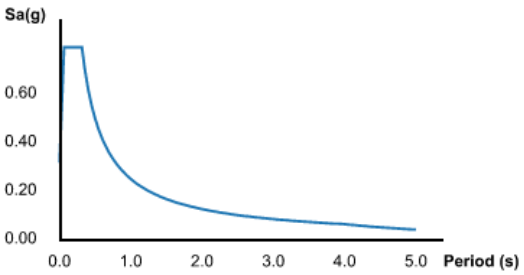
ATC Hazards by Location

Search Information

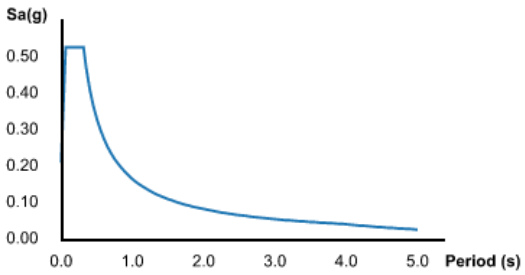
Address:	Yellow Jacket Ln, Colorado 80467, USA
Coordinates:	40.3271836, -106.8578466
Elevation:	7239 ft
Timestamp:	2022-05-16T22:10:37.821Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.598	MCE_R ground motion (period=0.2s)
S_1	0.104	MCE_R ground motion (period=1.0s)
S_{MS}	0.791	Site-modified spectral acceleration value
S_{M1}	0.248	Site-modified spectral acceleration value
S_{DS}	0.527	Numeric seismic design value at 0.2s SA
S_{D1}	0.165	Numeric seismic design value at 1.0s SA

▾Additional Information

Name	Value	Description
SDC	D	Seismic design category
F_a	1.321	Site amplification factor at 0.2s
F_v	2.393	Site amplification factor at 1.0s

https://hazards.atcouncil.org/#/seismic?lat=40.3271836&lng=-106.8578466&address=Yellow Jacket Ln%2C Colorado 80467%2C USA 1/2

CR_S	0.906	Coefficient of risk (0.2s)
CR_1	0.945	Coefficient of risk (1.0s)
PGA	0.42	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.504	Site modified peak ground acceleration
T_L	4	Long-period transition period (s)
SsRT	0.598	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.66	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.104	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.11	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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PROJECT	DATE	SHEET
KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**43**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Lateral Analysis - Seismic

S_S	59.8	Mapped spectral acceleration for short periods, %, per Fig. 1613.3.1(1) or from NSHMP Program
S_1	10.4	Mapped spectral acceleration for 1-second periods, %, per Fig. 1613.3.1(2) or from NSHMP Program
SC	D	Site Class as defined per ASCE 7-16 Tbl. 20.3-1
F_a	1.321	Site coeff as a function of Site Class and S_S per IBC 2018 Tbl. 1613.2.3(1)
F_v	2.393	Site coeff as a function of Site Class and S_1 per IBC 2018 Tbl. 1613.2.3(2)
R	6.5	Response modification factor per ASCE 7-16 Tbl. 12.2-1
I_E	1	Occupancy importance factor per ASCE 7-16 Table 1.5-2
S_{MS}	0.790	IBC 2018 Eq. 16-36
S_{M1}	0.249	IBC 2018 Eq. 16-37
S_{DS}	0.527	IBC 2018 Eq. 16-38
S_{D1}	0.166	IBC 2018 Eq. 16-39
C_T	0.02	Building period coeff per ASCE 7-16 Table 12.8-2
h_n	10	Height of building above base level to highest level of structure, ft., per ASCE 7-16 12.8.2.1
x=	0.75	ASCE 7-16 Table 12.8-2
T_a	0.112	Approximate Fundamental period of the building, sec. per ASCE 7-16 12.8.2.1
f	8.891	Frequency of the building, Hz
T_0	0.063	Period corresponding to change in design response spectrum
T_S	0.315	Short period ASCE 7-16 11.3
T_L	4.000	Long-period transition period shown in ASCE 7-16 Fig. 22-14
S_a	0.527	ASCE 7-16 Eq. 11.4-6 For $T_L > T > T_S$
RC	II	Risk Category Per IBC 2018 1604.5, Table 1604.5
SDC	D	Seismic Design Category per IBC 2018 Table 1613.2.5(1) & 1613.2.5(2)
C_S	0.0810	ASCE 7-16 Eq. 12.8-2
C_S	0.2270	ASCE 7-16 Eq. 12.8-3
C_S	0.0232	ASCE 7-16 Eq. 12.8-5

Base Shear Coefficient used in calculations

C_S	0.081	*W	(Ultimate)
C_S	0.058	*W	(Service) = (Ultimate)/1.4 IBC 2018 Sec. 1605.3.2
k=	1		

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SHEET	DATE	PROJECT
44	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

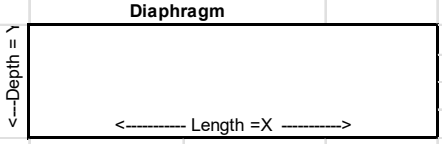
Lateral Analysis - Seismic

Elevation=		ft
Pf=		psf
Seismic Snow=	20	psf

Dead Loading

Roof	Diaphragm	17	PSF
	Walls	48	PLF
	Deck/Other		PSF
Main Floor	Diaphragm	15	PSF
	Walls	48	PLF
	Deck/Other		PSF
	Diaphragm		PSF
	Walls		PLF
	Deck/Other		PSF
	Diaphragm		PSF
	Walls		PLF
	Deck/Other		PSF
	Diaphragm		PSF
	Walls		PLF
	Deck/Other		PSF

Diaphragm



Level	LENGTH	DEPTH	$AREA_{ROOF}$	$AREA_{FLOOR}$	$AREA_{DECK}$	WALL	SNOW	Story Weight (w_x)
Roof	51 FT	16 FT	816 sq ft			150 FT	20 psf	37.4 k
Main Floor	51 FT	14 FT		714 sq ft		150 FT	20 psf	17.9 k

Total Building Weight=	55 k
Base Shear V (Ultimate)=	4.48 k
Base Shear V (Service)=	3.20 k

Base Shear= Service

	Vertical Distribution of Seismic Forces					Diaphragm Forces	
Level	h_x	$w_x*h_x^k$	C_{vx}	F_x	V_x	ASCE 7-16 12.10.1.1 F_{px}	ASCE 7-16 12.14-5 E
Roof	10.0 ft	373.92	0.954	3.05 k	3.05 k	3.94 k	5.12 k
Main Floor	1.0 ft	17.91	0.046	0.15 k	3.20 k	1.89 k	2.45 k
		391.83	1.000	3.20 k	<=checks okay		

h_x = the height from the base to level x
C_{vx} = vertical distribution factor
F_x = lateral seismic force

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KEB Homes, Inc. **Jones Sledhaus** 28935 Yellow Jacket Dr., Oak Creek, Colorado	**June, 22**	**45**
	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Wind Loading

Lateral Analysis - Wind

Method 2 - Simplified Procedure (ASCE 7, 28.6)

Ht <= 60ft	Okay		Roof Slope < 45deg?	Okay	
Regular Shape?	Okay	See 26.2			
Non-Flexible?	Okay	f=	8.9 Hz	> 1 Hz	

V_{wind} =	115 mph	h_{roof} =	10 ft	Mean roof height, if slope is <= 1.2/12, use eave height
$P_{min\ (A\ \&\ C)}$ =	16 psf	λ_{roof} =	1.21	
$P_{min\ (B\ \&\ D)}$ =	8 psf	l_{min} =	14 ft	Least Horizontal Dimension
Exposure	C	a =	3.0 ft	
Slope (x/12)	3	K_{zt} =	1.0	

Lateral Wind Analysis designed in accordance with IBC 2018 1609 & ASCE 7-16 Chapter 28, Loads reduced by 0.6 per Eq. 16-15

ASCE 7 Figure 28.6-1 Values		Design Values per ASCE 7 Eq. 28.6-1	
A:	26.3 psf	A:	31.8 psf
B:	-8.7 psf	B:	0.0 psf
C:	17.5 psf	C:	21.2 psf
D:	-5.0 psf	D:	0.0 psf

Notice: Front to Back (F-B) is Y direction and Right to Left (R-L) is X direction.

Wind Loading - X Direction

1. Force acting R - L	Roof			2. Force acting R - L	Main Floor		
Tributary Area (ft^2)			Loading	Tributary Area (ft^2)			Loading
Area A=	43	P=	1.4 kip	Area A=	43	P=	1.4 kip
Area B=	0	P=	0.0 kip	Area B=		P=	0.0 kip
Area C=	61	P=	1.3 kip	Area C=	61	P=	1.3 kip
Area D=	0	P=	0.0 kip	Area D=		P=	0.0 kip
Area Total=	104	P (total)=	2.7 kip	Area Total=	104	P (total)=	2.7 kip
P =	2.7 kip	**<= Governs**		P =	2.7 kip	**<= Governs**	
P_{min} =	1.7 kip			P_{min} =	1.7 kip		
$P_{design\ (0.6W)}$=	1.6 kip	(Eq. 16-15)		P_{gov} =	2.7 kip		
				$P_{design\ (0.6W)}$=	3.2 kip		(Eq. 16-15)

Wind Loading - Y Direction

1. Force acting F-B	Roof			2. Force acting F - B	Main Floor		
Tributary Area (ft^2)			Loading	Tributary Area (ft^2)			Loading
Area A=	24	P=	0.8 kip	Area A=	24	P=	0.8 kip
Area B=	21	P=	0.0 kip	Area B=		P=	0.0 kip
Area C=	136	P=	2.9 kip	Area C=	136	P=	2.9 kip
Area D=	120	P=	0.0 kip	Area D=		P=	0.0 kip
Area Total=	301	P (total)=	3.6 kip	Area Total=	160	P (total)=	3.6 kip
P =	3.6 kip			P =	3.6 kip	**<= Governs**	
P_{min} =	3.7 kip	**<= Governs**		P_{min} =	2.6 kip		
$P_{design\ (0.6W)}$=	2.2 kip	(Eq. 16-15)		P_{gov} =	3.6 kip		
				$P_{design\ (0.6W)}$=	4.4 kip		(Eq. 16-15)

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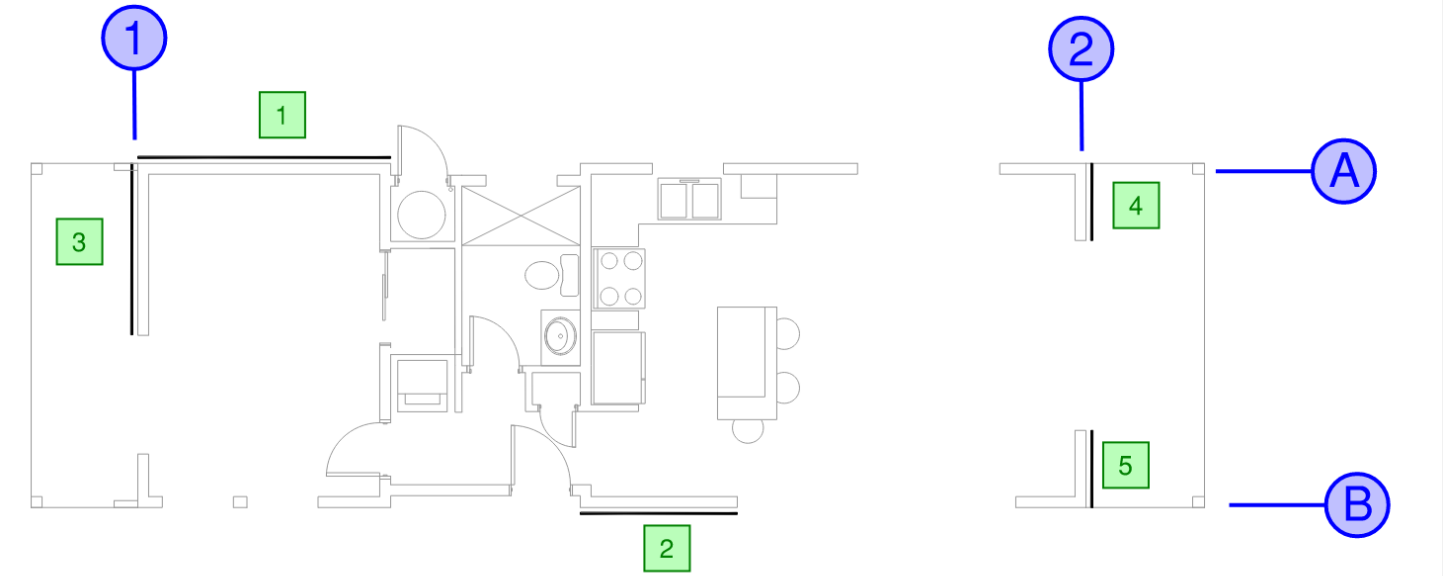
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

Shearwall Key Plans

Roof Diaphragm (Main Floor Walls)[1]



[1] [1] Key plans provided are intended to show location and orientation of shearwalls used in the analysis but do not show exact locations of holdowns. Holdowns are located at the ends of each wall and are shown on the foundation plan in the contract documents. Uplift values and holdown designations are provided in the lateral calculations on sheet 24.

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	DESIGNED BY **2 2 4 1 1 A B S**	PROJECT NO. **22411**

Shearwall Design

Story and Line Loading

Lateral Analysis - Line Distribution

Line Identification			Wind			Seismic			
Floor Level	Dir.	Line #	V_{TOTAL} (kips)	$\%_{TRIBUTARY}$ Projected Area	V_{LINE} (kips)	R	V_{TOTAL} (kips)	$\%_{TRIBUTARY}$ Area	V_{LINE} (kips)
Roof	X	A	1.60	50.00	0.80	6.5	3.05	50.00	1.53
Roof	X	B	1.60	50.00	0.80	6.5	3.05	50.00	1.53
Roof	Y	1	2.21	50.00	1.11	6.5	3.05	50.00	1.53
Roof	Y	2	2.21	50.00	1.11	6.5	3.05	50.00	1.53

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48	**June, 22**	KEB Homes, Inc.
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Wall Shear Requirements

ρ_{max} = **1.3**

Floor Depth Under 14"? Yes

Line Identification	Wall #	L_{wall} (ft)	H_{wall} (ft)	Wind $Load_D$ (plf)	Seismic $Load_D$ (plf)	$Holdown_{type}$	Holdown Location	Wall $\#_{above}$	Wood Used	Nail Used	SW Thick.	Shearwall Design	Holdown Required
Roof - X Dir. - Line A	1	10.50 ft	8.00	150.00	150	Floor-to-Floor			HF	8d	7/16in	SW1	Use CS16x28 plus flr depth w/30-8d
Roof - X Dir. - Line B	2	6.50 ft	8.00	150.00	150	Floor-to-Floor			HF	8d	7/16in	SW2	Use CS16x28 plus flr depth w/30-8d
Roof - Y Dir. - Line 1	3	7.00 ft	8.00	130.00	130	Floor-to-Floor			HF	8d	7/16in	SW2	Use CS16x28 plus flr depth w/30-8d
Roof - Y Dir. - Line 2	4	3.25 ft	8.50	75.00	75	Floor-to-Floor			HF	8d	7/16in	SW3	Use MST37 w/20-16d
Roof - Y Dir. - Line 2	5	3.25 ft	8.50	75.00	75	Floor-to-Floor			HF	8d	7/16in	SW3	Use MST37 w/20-16d

		Unit Shear (plf)				7/16in Framing at 16in o.c. or Framing at 24in o.c. (Sheathing long axis horizontal)			Holdown Force			Redundancy		
		Unmodified		Modified seismic shear for Height:Width Per IBC	H:W factor	Use to Compare with Shearwall Table		Shearwall Type	Tension forces are not modified for height:width $Tension_{max}$ (lbs)		Holdown Required	Wall Shear Load	% Story Shear	ρ
#	L_{wall} (ft)	v_{wind} plf	v_{seis} plf			v_{wind} (v_{wind} /1.4)	v_{seis} (v_{seis} ρ H:w)		Wind	Seismic				
1	10.50	76	145	NO	1.00	54	189	SW1	136	514	Use CS16x28 plus flr depth w/30-8d	1.53 kip	50	1.0
2	6.50	123	235	NO	1.00	88	305	SW2	690	1477	Use CS16x28 plus flr depth w/30-8d	1.53 kip	50	1.3
3	7.00	158	218	NO	1.00	113	284	SW2	991	1370	Use CS16x28 plus flr depth w/30-8d	1.53 kip	50	1.3
4	3.25	170	235	YES	1.31	122	399	SW3	1374	1896	Use MST37 w/20-16d	0.76 kip	25	1.0
5	3.25	170	235	YES	1.31	122	399	SW3	1374	1896	Use MST37 w/20-16d	0.76 kip	25	1.0

Multiple CS14 Straps used to attach to Beam
(1) CS14 1300 LBS
(2) CS14 2600 LBS
(3) CS14 3900 LBS

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	DESIGNED BY **2 2 4 1 1** **A B S**	PROJECT NO. **22411**

Seismic Check on Beams

Beam check for Seismic and Wind Loads at Hold Down Straps

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project ID:
Project Descr:

Printed: 27 JUN 2022, 1:33PM
File: Jones Sledhaus!.ec6
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MCNEIL GROUP INC.

Wood Beam
Lic. # : KW-06016079

DESCRIPTION: FB1 Shear wall check

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set : ASCE 7-16

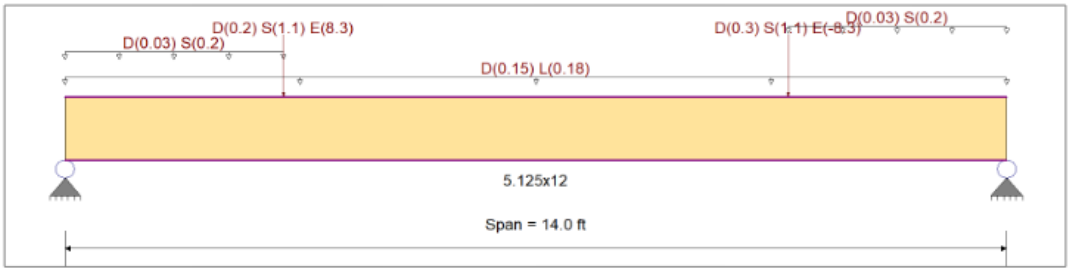
Material Properties

Analysis Method : Allowable Stress Design
Load Combination ASCE 7-16

Wood Species : DF/DF
Wood Grade : 24F-E4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

		E : Modulus of Elasticity	
Fb +	2,400.0 psi	Ebend- xx	1,800.0 ksi
Fb -	1,450.0 psi	Eminbend - xx	950.0 ksi
Fc - Prll	1,700.0 psi	Ebend- yy	1,700.0 ksi
Fc - Perp	650.0 psi	Eminbend - yy	900.0 ksi
Fv	265.0 psi	Density	31.210 pcf
Ft	1,100.0 psi		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.150, L = 0.180 , Tributary Width = 1.0 ft
Uniform Load : D = 0.030, S = 0.20 k/ft, Extent = 0.0 -->> 3.250 ft, Tributary Width = 1.0 ft
Uniform Load : D = 0.030, S = 0.20 k/ft, Extent = 10.750 -->> 14.0 ft, Tributary Width = 1.0 ft
Point Load : D = 0.20, S = 1.10, E = 8.30 k @ 3.250 ft
Point Load : D = 0.30, S = 1.10, E = -8.30 k @ 10.750 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.429 : 1	Maximum Shear Stress Ratio	=	0.317 : 1
Section used for this span		5.125x12	Section used for this span		5.125x12
fb: Actual	=	1,649.16 psi	fv: Actual	=	134.42 psi
Fb: Allowable	=	3,840.00 psi	Fv: Allowable	=	424.00 psi
Load Combination		+D+0.750L+0.750S+0.5250E	Load Combination		+D+0.750L+0.750S+0.5250E
Location of maximum on span	=	3.270 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.139 in	Ratio =	1208 >=360
Max Upward Transient Deflection	-0.076 in	Ratio =	2218 >=360
Max Downward Total Deflection	0.329 in	Ratio =	510 >=180
Max Upward Total Deflection	-0.007 in	Ratio =	24772 >=180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.210	0.128	0.90	1.000	1.00	1.00	1.00	1.00	1.00	4.65	453.44	2160.00	1.25	30.48	238.50
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.368	0.215	1.00	1.000	1.00	1.00	1.00	1.00	1.00	9.06	883.58	2400.00	2.33	56.95	265.00
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.328	0.225	1.15	1.000	1.00	1.00	1.00	1.00	1.00	9.28	905.27	2760.00	2.81	68.42	304.75
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.259	0.152	1.25	1.000	1.00	1.00	1.00	1.00	1.00	7.95	776.03	3000.00	2.06	50.33	331.25
+D+0.750L+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.404	0.259	1.15	1.000	1.00	1.00	1.00	1.00	1.00	11.43	1,114.90	2760.00	3.23	78.79	304.75

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SHEET	DATE	PROJECT
50	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

Title Block Line 1
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Title Block Line 6

Project Title:
Engineer:
Project ID:
Project Descr:

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Wood Beam

Lic. # : KW-06016079

DESCRIPTION: FB1 Shear wall check

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.071	0.043	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.79	272.06	3840.00	0.75	18.29	424.00
+D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.345	0.248	1.60	1.000	1.00	1.00	1.00	1.00	1.00	13.58	1,324.62	3840.00	4.31	105.08	424.00
+D+0.750L+0.750S+0.5250E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.429	0.317	1.60	1.000	1.00	1.00	1.00	1.00	1.00	16.90	1,649.16	3840.00	5.51	134.42	424.00
+0.60D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.309	0.220	1.60	1.000	1.00	1.00	1.00	1.00	1.00	12.17	1,187.42	3840.00	3.83	93.42	424.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E	1	0.3292	5.978		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.963	-4.446
Overall MINimum	4.446	1.750
D Only	1.371	1.424
+D+L	2.631	2.684
+D+S	3.121	3.174
+D+0.750L	2.316	2.369
+D+0.750L+0.750S	3.628	3.682
+0.60D	0.822	0.855
+D+0.70E	4.483	-1.688
+D+0.750L+0.750S+0.5250E	5.963	1.347
+0.60D+0.70E	3.935	-2.258
L Only	1.260	1.260
S Only	1.750	1.750
E Only	4.446	-4.446

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Project ID:
Project Descr:

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Wood Beam

DESCRIPTION: FB 3 Seismic Check

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination ASCE 7-16

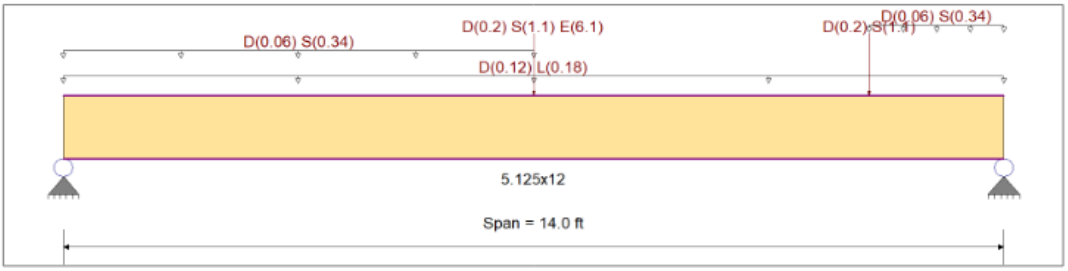
Wood Species : DF/DF
Wood Grade : 24F-E4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	1,450.0 psi
Fc - Prll	1,700.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,700.0 ksi
Eminbend - yy	900.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.120, L = 0.180 , Tributary Width = 1.0 ft
Uniform Load : D = 0.060, S = 0.340 k/ft, Extent = 0.0 -->> 7.0 ft, Tributary Width = 1.0 ft
Uniform Load : D = 0.060, S = 0.340 k/ft, Extent = 12.0 -->> 14.0 ft, Tributary Width = 1.0 ft
Point Load : D = 0.20, S = 1.10, E = 6.10 k @ 7.0 ft
Point Load : D = 0.20, S = 1.10 k @ 12.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.667 : 1	Maximum Shear Stress Ratio	=	0.308 : 1
Section used for this span		5.125x12	Section used for this span		5.125x12
fb: Actual	=	2,560.24 psi	fv: Actual	=	130.74 psi
Fb: Allowable	=	3,840.00 psi	Fv: Allowable	=	424.00 psi
Load Combination		+D+0.750L+0.750S+0.5250E	Load Combination		+D+0.750L+0.750S+0.5250E
Location of maximum on span	=	7.000 ft	Location of maximum on span	=	13.029 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.456 in	Ratio =	368 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.628 in	Ratio =	267 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.209	0.118	0.90	1.000	1.00	1.00	1.00	1.00	1.00	4.64	452.20	2160.00	1.15	28.12	238.50
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.368	0.206	1.00	1.000	1.00	1.00	1.00	1.00	1.00	9.04	882.44	2400.00	2.24	54.59	265.00
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.498	0.284	1.15	1.000	1.00	1.00	1.00	1.00	1.00	14.09	1,374.63	2760.00	3.54	86.40	304.75
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.258	0.145	1.25	1.000	1.00	1.00	1.00	1.00	1.00	7.94	774.88	3000.00	1.97	47.98	331.25
+D+0.750L+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.531	0.301	1.15	1.000	1.00	1.00	1.00	1.00	1.00	15.03	1,466.71	2760.00	3.76	91.68	304.75

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SHEET	DATE	PROJECT
52	**June, 22**	KEB Homes, Inc.
PROJECT NO.	DESIGNED BY	**Jones Sledhaus**
22411	**A B S**	28935 Yellow Jacket Dr., Oak Creek, Colorado

Title Block Line 1
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Project ID:
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Wood Beam

Lic. # : KW-06016079

DESCRIPTION: FB 3 Seismic Check

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.071	0.040	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.78	271.32	3840.00	0.69	16.87	424.00
+D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.497	0.189	1.60	1.000	1.00	1.00	1.00	1.00	1.00	19.58	1,910.24	3840.00	3.29	80.20	424.00
+D+0.750L+0.750S+0.5250E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.667	0.308	1.60	1.000	1.00	1.00	1.00	1.00	1.00	26.24	2,560.24	3840.00	5.36	130.74	424.00
+0.60D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.0 ft	1	0.450	0.163	1.60	1.000	1.00	1.00	1.00	1.00	1.00	17.73	1,729.37	3840.00	2.83	68.95	424.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E	1	0.6280	7.000		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.744	5.914
Overall MINimum	3.050	3.050
D Only	1.292	1.328
+D+L	2.552	2.588
+D+S	3.833	4.047
+D+0.750L	2.237	2.273
+D+0.750L+0.750S	4.143	4.312
+0.60D	0.775	0.797
+D+0.70E	3.427	3.463
+D+0.750L+0.750S+0.5250E	5.744	5.914
+0.60D+0.70E	2.910	2.932
L Only	1.260	1.260
S Only	2.541	2.719
E Only	3.050	3.050

REScheck Software Version 4.7.2

Compliance Certificate

Project Jones - Sledhaus

Energy Code:	**2015 IECC**
Location:	**Oak Creek, Colorado**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**572 ft2**
Glazing Area	**22%**
Climate Zone:	**7 (8824 HDD)**
Permit Date:	
Permit Number:	

Construction Site:
28935 Yellow Jacket Dr.
Oak Creek, CO 80467

Owner/Agent:
Stephen Jones

Designer/Contractor:
Irontown Homes
1947 N. Chappel Drive
Spanish Fork, UT 84660
801-798-9026

Compliance: Passes using UA trade-off

Compliance: **0.0% Better Than Code** Maximum UA: **149** Your UA: **149**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

NOTE: Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Wall 1: Wood Frame, 16" o.c.	355	21.0	0.0	0.057	0.045	14	11
Window 1: Vinyl/Fiberglass Frame:Double Pane with Low-E	15			0.310	0.320	5	5
Window 2: Vinyl/Fiberglass Frame:Double Pane with Low-E	15			0.310	0.320	5	5
Window 3: Vinyl/Fiberglass Frame:Double Pane with Low-E	20			0.310	0.320	6	6
Window 4: Vinyl/Fiberglass Frame:Double Pane with Low-E	20			0.310	0.320	6	6
Window 5: Vinyl/Fiberglass Frame:Double Pane with Low-E	20			0.310	0.320	6	6
Window 6: Vinyl/Fiberglass Frame:Double Pane with Low-E	2			0.310	0.320	1	1
Window 7: Vinyl/Fiberglass Frame:Double Pane with Low-E	2			0.310	0.320	1	1
Door 1: Solid	20			0.140	0.320	3	6
Wall 2: Wood Frame, 16" o.c.	143	21.0	0.0	0.057	0.045	6	5
Door 4: Glass	33			0.290	0.320	10	11
Wall 3: Wood Frame, 16" o.c.	355	21.0	0.0	0.057	0.045	18	14

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Window 9: Vinyl/Fiberglass Frame:Double Pane	3			0.310	0.320	1	1
Window 10: Vinyl/Fiberglass Frame:Double Pane with Low-E	9			0.310	0.320	3	3
Window 11: Vinyl/Fiberglass Frame:Double Pane with Low-E	12			0.310	0.320	4	4
Window 12: Vinyl/Fiberglass Frame:Double Pane with Low-E	2			0.310	0.320	1	1
Window 13: Vinyl/Fiberglass Frame:Double Pane with Low-E	2			0.310	0.320	1	1
Door 3: Solid	16			0.140	0.320	2	5
Wall 4: Wood Frame, 16" o.c.	143	21.0	0.0	0.057	0.045	5	4
Window 14: Wood Frame:Double Pane with Low-E	3			0.310	0.320	1	1
Window 15: Wood Frame:Double Pane with Low-E	3			0.310	0.320	1	1
Door 2: Glass	53			0.290	0.320	15	17
Ceiling 1: Flat Ceiling or Scissor Truss	476	38.0	0.0	0.030	0.026	14	12
Ceiling 2: Cathedral Ceiling	225	33.0	0.0	0.031	0.026	7	6
Crawl 1: Solid Concrete or Masonry Wall height: 2.5' Depth below grade: 1.8' Insulation depth: 2.5'	263	0.0	30.0	0.045	0.055	13	16

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in RES*check* Version 4.7.2 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Design Manager		07/08/22
Name - Title	Signature	Date

RES*check* Software Version 4.7.2

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the RES*check* software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PR3][1]	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][2]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr_____ Cooling: Btu/hr_____	Heating: Btu/hr_____ Cooling: Btu/hr_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.2.11 [FO7][1]	Unvented crawl space wall insulation R-value.	R-_____ R-_____	R-_____ R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [FO8][1]	Unvented crawl space wall insulation installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.11 [FO9][1]	Unvented crawl space continuous vapor retarder installed over exposed earth, joints overlapped by 6 in. and sealed, extending at least 6 in. up and attached to the wall.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.11 [FO10][1]	Unvented crawl space wall insulation depth of burial or distance from top of wall.	_____ in.	_____ in.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2.1 [FO11][2]	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12][2]	Snow- and ice-melting system controls installed.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1][1]	Door U-factor.	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.3.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][2]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][3]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][2]	HVAC piping conveying fluids above 105 ºF or chilled fluids below 55 ºF are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][2]	Hot water pipes are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][2]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13][2]	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3][1]	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-_____ ☐ Wood ☐ Mass ☐ Steel	R-_____ ☐ Wood ☐ Mass ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [IN4][1]	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-_____ ☐ Wood ☐ Steel	R-_____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.3 [FI22][2]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =_____	ACH 50 =_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	_____ cfm/100 ft²	_____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	_____ cfm/100 ft²	_____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][2]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][2]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][2]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25][2]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][2]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28][2]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29][2]	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][2]	Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104ºF.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31][2]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.1 [FI23][3]	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	**21.00**
Below-Grade Wall	**30.00**
Floor	**0.00**
Ceiling / Roof	**38.00**
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	**0.31**	**0.30**
Door	**0.29**	**0.30**

Heating & Cooling Equipment	Efficiency
Heating System: Electric	100%
Cooling System: None	_____
Water Heater: Electric	100%

Name: Bryant Canaan **Date:** 07/08/22

Comments

Load Short Form
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Information

	Htg	Clg
Outside db (°F)	-15	90
Inside db (°F)	72	72
Design TD (°F)	87	18
Daily range	-	H
Inside humidity (%)	30	50
Moisture difference (gr/lb)	41	-35

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

HEATING EQUIPMENT

Make	Generic		
Trade			
Model	Generic		
AHRI ref			
Efficiency	10 HSPF		
Heating input			
Heating output	24000	Btuh @ 47°F	
Temperature rise	37	°F	
Actual air flow	733	cfm	
Air flow factor	0.034	cfm/Btuh	
Static pressure	0.40	in H2O	
Space thermostat			

Capacity balance point = 9 °F

Backup: Elec baseboard
Input = 23594 Btuh, Output = 23594 Btuh, 100 EFF

COOLING EQUIPMENT

Make	Generic		
Trade			
Cond	Generic		
Coil			
AHRI ref			
Efficiency	10.9 EER, 19 SEER		
Sensible cooling	18700	Btuh	
Latent cooling	3300	Btuh	
Total cooling	22000	Btuh	
Actual air flow	733	cfm	
Air flow factor	0.086	cfm/Btuh	
Static pressure	0.40	in H2O	
Load sensible heat ratio	1.00		

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Master Bed	161	0	0	0	0
Kitchen	145	18297	8480	629	729
Bath	47	0	0	0	0
Living	160	0	0	0	0
Entry	58	0	0	0	0
Crawlspace	580	3010	44	104	4

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Entire House	d	1150	21306	8523	733	733
Other equip loads			2288	486		
Equip. @ 0.95	RSM			8595		
Latent cooling				0		
TOTALS		1150	23594	8595	733	733

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Component Constructions
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	449	0.065	21.0	5.63	2527	0.63	285
	e	220	0.065	21.0	5.63	1239	0.63	139
	s	373	0.065	21.0	5.63	2097	0.63	236
	w	241	0.065	21.0	5.63	1354	0.63	152
	all	1282	0.065	21.0	5.63	7217	0.63	813
15B-20s3c-4: Bg wall, heavy dry or light damp soil, concrete wall, r-30 ins, 8" thk	n	160	0.049	20.0	4.16	665	0.06	9
	e	58	0.049	20.0	4.16	241	0.06	3
	s	160	0.049	20.0	4.16	665	0.06	9
	w	58	0.049	20.0	4.16	241	0.06	3
	all	436	0.049	20.0	4.16	1812	0.06	25
Partitions								
(none)								
Windows								
2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk: 2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 6.67 ft head ht	n	28	0.310	0	26.8	752	11.7	327
	e	54	0.310	0	26.8	1460	34.9	1899
	s	116	0.310	0	26.8	3103	18.6	2152
	w	34	0.310	0	26.8	913	34.9	1187
	all	232	0.310	0	26.8	6228	24.0	5566
Doors								
11D0: Door, wd sc type	s	20	0.390	0	33.8	689	8.17	167
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		385	0.029	38.0	2.51	966	0.48	183
18A-38md: Rf/clg ceiling, mtl roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		192	0.029	38.0	2.51	481	0.48	91
Floors								
21A-32t: Bg floor, heavy dry or light damp soil, 4' depth		580	0.020	0	1.73	1005	0	0

Component Constructions
Master Bed
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	Heating	Cooling
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	235	0.065	21.0	5.63	1320	0.63	149
	e	144	0.065	21.0	5.63	811	0.63	91
	s	205	0.065	21.0	5.63	1151	0.63	130
	w	241	0.065	21.0	5.63	1354	0.63	152
	all	824	0.065	21.0	5.63	4635	0.63	522
Partitions								
(none)								
Windows								
2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk: 2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 6.67 ft head ht	n	4	0.310	0	26.8	107	11.7	47
	s	34	0.310	0	26.8	913	18.6	633
	w	34	0.310	0	26.8	913	34.9	1187
	all	72	0.310	0	26.8	1933	25.9	1867
Doors								
(none)								
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		79	0.029	38.0	2.51	198	0.48	38
18A-38md: Rf/clg ceiling, mtl roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		192	0.029	38.0	2.51	481	0.48	91
Floors								
(none)								

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	Heating	Cooling
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	81	0.065	21.0	5.63	456	0.63	51
	s	70	0.065	21.0	5.63	392	0.63	44
	all	151	0.065	21.0	5.63	848	0.63	95
Partitions								
(none)								
Windows								
2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk: 2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 6.67 ft head ht	n	9	0.310	0	26.8	242	11.7	105
	s	20	0.310	0	26.8	548	18.6	380
	all	29	0.310	0	26.8	789	16.5	485
Doors								
(none)								
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		129	0.029	38.0	2.51	323	0.48	61
Floors								
(none)								

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	Heating	Cooling
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	47	0.065	21.0	5.63	262	0.63	29
Partitions								
(none)								
Windows								
2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk: 2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 6.67 ft head ht	n	3	0.310	0	26.8	81	11.7	35
Doors								
(none)								
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		8	0.029	38.0	2.51	20	0.48	4
Floors								
(none)								

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	87	0.065	21.0	5.63	490	0.63	55
	e	76	0.065	21.0	5.63	428	0.63	48
	s	38	0.065	21.0	5.63	213	0.63	24
	all	201	0.065	21.0	5.63	1131	0.63	127
Partitions								
(none)								
Windows								
2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk: 2 glazing, clr outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 6.67 ft head ht	n	12	0.310	0	26.8	322	11.7	140
	e	54	0.310	0	26.8	1460	34.9	1899
	s	61	0.310	0	26.8	1643	18.6	1139
	all	128	0.310	0	26.8	3426	24.9	3179
Doors								
(none)								
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		160	0.029	38.0	2.51	401	0.48	76
Floors								
(none)								

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
12F-0sw: Frm wall, stucco ext, 3/8" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	s	61	0.065	21.0	5.63	341	0.63	38
Partitions								
(none)								
Windows								
(none)								
Doors								
11D0: Door, wd sc type	s	20	0.390	0	33.8	689	8.17	167
Ceilings								
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 12" thkns, r-38 ceil ins		10	0.029	38.0	2.51	24	0.48	5
Floors								
(none)								

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Design Conditions

Location:
Craig-Moffat, CO, US
Elevation: 6194 ft
Latitude: 41 °N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	-15	90
Daily range (°F)	-	38 (H)
Wet bulb (°F)	-	58
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	72	72
Design TD (°F)	87	18
Relative humidity (%)	30	50
Moisture difference (gr/lb)	41.5	-35.0

Infiltration:

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
15B-20s3c-4: Bg wall, heavy dry or light damp soil, concrete wall, r-30 ins, 8" thk	n	160	0.049	20.0	4.16	665	0.06	9
	e	58	0.049	20.0	4.16	241	0.06	3
	s	160	0.049	20.0	4.16	665	0.06	9
	w	58	0.049	20.0	4.16	241	0.06	3
	all	436	0.049	20.0	4.16	1812	0.06	25
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
(none)								
Floors								
21A-32t: Bg floor, heavy dry or light damp soil, 4' depth		580	0.020	0	1.73	1005	0	0

Project Summary
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Notes:

Design Information

Weather: Craig-Moffat, CO, US

Winter Design Conditions

Outside db	-15	°F
Inside db	72	°F
Design TD	87	°F

Summer Design Conditions

Outside db	90	°F
Inside db	72	°F
Design TD	18	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-35	gr/lb

Heating Summary

Structure	21306	Btuh
Ducts	0	Btuh
Central vent (30 cfm)	2288	Btuh
Outside air		
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	23594	Btuh

Sensible Cooling Equipment Load Sizing

Structure	8523	Btuh
Ducts	0	Btuh
Central vent (30 cfm)	486	Btuh
Outside air		
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.95	
Equipment sensible load	8595	Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

	Heating	Cooling
Area (ft²)	1150	1150
Volume (ft³)	7429	7429
Air changes/hour	0.31	0.16
Equiv. AVF (cfm)	38	20

Latent Cooling Equipment Load Sizing

Structure	25	Btuh
Ducts	0	Btuh
Central vent (30 cfm)	-571	Btuh
Outside air		
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	8595	Btuh
Req. total capacity at 0.85 SHR	0.8	ton

Heating Equipment Summary

Make	Generic
Trade	
Model	Generic
AHRI ref	
Efficiency	10 HSPF
Heating input	
Heating output	24000 Btuh @ 47°F
Temperature rise	37 °F
Actual air flow	733 cfm
Air flow factor	0.034 cfm/Btuh
Static pressure	0.40 in H2O
Space thermostat	

Capacity balance point = 9 °F

Backup: Elec baseboard
Input = 23594 Btuh, Output = 23594 Btuh, 100 EFF

Cooling Equipment Summary

Make	Generic
Trade	
Cond	Generic
Coil	
AHRI ref	
Efficiency	10.9 EER, 19 SEER
Sensible cooling	18700 Btuh
Latent cooling	3300 Btuh
Total cooling	22000 Btuh
Actual air flow	733 cfm
Air flow factor	0.086 cfm/Btuh
Static pressure	0.40 in H2O
Load sensible heat ratio	1.00

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Right-J® Worksheet
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

1	Room name						Entire House					Master Bed			
2	Exposed wall						214.5 ft					34.5 ft			
3	Room height						8.0 ft		d			19.7 ft		heat/cool	
4	Room dimensions											1.0 x 160.8 ft			
5	Room area						1149.5 ft²					160.8 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)			Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool		Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	5.63	0.63	477	449	2527	285		239	235	1320	149
.	└G	2 glazing, dr outr,	0.310	n	26.85	11.68	28	0	752	327		4	0	107	47
.	W	15B-20s3c-4	0.049	n	4.16	0.06	160	160	665	9		0	0	0	0
.	W	12F-0sw	0.065	e	5.63	0.63	275	220	1239	139		144	144	811	91
11	└G	1D-c2ovd	0.310	e	26.85	34.92	54	0	1460	1899		0	0	0	0
	W	15B-20s3c-4	0.049	e	4.16	0.06	58	58	241	3		0	0	0	0
	W	12F-0sw	0.065	s	5.63	0.63	509	373	2097	236		239	205	1151	130
	├G	2 glazing, dr outr,	0.310	s	26.85	18.62	116	0	3103	2152		34	0	913	633
	└D	11D0	0.390	s	33.77	8.17	20	20	689	167		0	0	0	0
	W	15B-20s3c-4	0.049	s	4.16	0.06	160	160	665	9		0	0	0	0
	W	12F-0sw	0.065	w	5.63	0.63	275	241	1354	152		275	241	1354	152
	└G	1D-c2ovd	0.310	w	26.85	34.92	34	0	913	1187		34	0	913	1187
	W	15B-20s3c-4	0.049	w	4.16	0.06	58	58	241	3		0	0	0	0
	C	18A-38ad	0.029	-	2.51	0.48	385	385	966	183		79	79	198	38
	C	18A-38md	0.029	-	2.51	0.48	192	192	481	91		192	192	481	91
	F	21A-32t	0.020	-	1.73	0.00	580	580	1005	0		0	0	0	0
6	c) AED excursion									0					201
	Envelope loss/gain								18398	6844				7248	2719
12	a) Infiltration								2909	319				1585	174
	b) Room ventilation								0	0				0	0
13	Internal gains:	Occupants @	230				2			460		0			0
		Appliances/other								900					0
	Subtotal (lines 6 to 13)								21306	8523				8833	2893
	Less external load								0	0				0	0
	Less transfer								0	0				0	0
	Redistribution								0	0				-8833	-2893
14	Subtotal								21306	8523				0	0
15	Duct loads						0%	0%	0	0		-0%	0%	0	0
	Total room load								21306	8523				0	0
	Air required (cfm)								733	733				0	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Right-J® Worksheet
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

		Kitchen	Bath
1	Room name		
2	Exposed wall	20.0 ft	5.5 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	10.0 x 14.5 ft	5.5 x 8.5 ft
5	Room area	145.0 ft²	46.8 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	5.63	0.63	90	81	456	51	50	47	262	29
.	└G	2 glazing, dr outr,	0.310	n	26.85	11.68	9	0	242	105	3	0	81	35
.	W	15B-20s3c-4	0.049	n	4.16	0.06	0	0	0	0	0	0	0	0
.	W	12F-0sw	0.065	e	5.63	0.63	0	0	0	0	0	0	0	0
11	└G	1D-c2ovd	0.310	e	26.85	34.92	0	0	0	0	0	0	0	0
	W	15B-20s3c-4	0.049	e	4.16	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	5.63	0.63	90	70	392	44	0	0	0	0
	├G	2 glazing, dr outr,	0.310	s	26.85	18.62	20	0	548	380	0	0	0	0
	└D	11D0	0.390	s	33.77	8.17	0	0	0	0	0	0	0	0
	W	15B-20s3c-4	0.049	s	4.16	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	5.63	0.63	0	0	0	0	0	0	0	0
	└G	1D-c2ovd	0.310	w	26.85	34.92	0	0	0	0	0	0	0	0
	W	15B-20s3c-4	0.049	w	4.16	0.06	0	0	0	0	0	0	0	0
	C	18A-38ad	0.029	-	2.51	0.48	129	129	323	61	8	8	20	4
	C	18A-38md	0.029	-	2.51	0.48	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.73	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-10				-4
	Envelope loss/gain								1960	632			362	64
12	a) Infiltration								319	35			88	10
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				2			460	0			0
		Appliances/other								900				0
	Subtotal (lines 6 to 13)								2278	2027			450	74
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								16018	6453			-450	-74
14	Subtotal								18297	8480			0	0
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								18297	8480			0	0
	Air required (cfm)								629	729			0	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Right-J® Worksheet
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

1	Room name					Living						Entry			
2	Exposed wall					36.5 ft						9.0 ft			
3	Room height					9.0 ft				heat/cool		9.0 ft			heat/cool
4	Room dimensions					11.0 x 14.5 ft						1.0 x 57.5 ft			
5	Room area					159.5 ft²						57.5 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	5.63	0.63	99	87	490	55	0	0	0	0
.	└G	2 glazing, dr outr,	0.310	n	26.85	11.68	12	0	322	140	0	0	0	0
.	W	15B-20s3c-4	0.049	n	4.16	0.06	0	0	0	0	0	0	0	0
.	W	12F-0sw	0.065	e	5.63	0.63	131	76	428	48	0	0	0	0
11	└G	1D-c2ovd	0.310	e	26.85	34.92	54	0	1460	1899	0	0	0	0
	W	15B-20s3c-4	0.049	e	4.16	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	s	5.63	0.63	99	38	213	24	81	61	341	38
	├G	2 glazing, dr outr,	0.310	s	26.85	18.62	61	0	1643	1139	0	0	0	0
	└D	11D0	0.390	s	33.77	8.17	0	0	0	0	20	20	689	167
	W	15B-20s3c-4	0.049	s	4.16	0.06	0	0	0	0	0	0	0	0
	W	12F-0sw	0.065	w	5.63	0.63	0	0	0	0	0	0	0	0
	└G	1D-c2ovd	0.310	w	26.85	34.92	0	0	0	0	0	0	0	0
	W	15B-20s3c-4	0.049	w	4.16	0.06	0	0	0	0	0	0	0	0
	C	18A-38ad	0.029	-	2.51	0.48	160	160	401	76	10	10	24	5
	C	18A-38md	0.029	-	2.51	0.48	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.73	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-173				-11
	Envelope loss/gain								4957	3209			1054	198
12	a) Infiltration								581	64			143	16
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								5538	3273			1197	214
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								-5538	-3273			-1197	-214
14	Subtotal								0	0			0	0
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								0	0			0	0
	Air required (cfm)								0	0			0	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

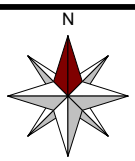
Right-J® Worksheet
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

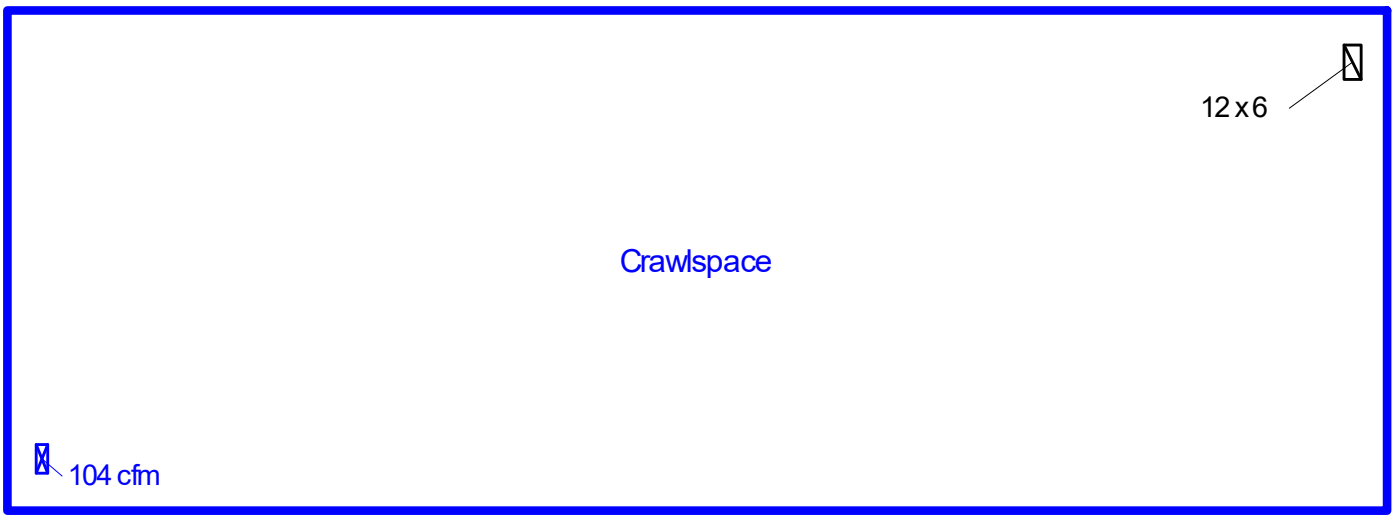
857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

1	Room name				Crawlspace										
2	Exposed wall				109.0 ft										
3	Room height				4.0 ft				heat/cool						
4	Room dimensions				40.0 x 14.5 ft										
5	Room area				580.0 ft²										
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sw	0.065	n	5.63	0.63	0	0	0	0				
.	└─G	2 glazing, dr outr,	0.310	n	26.85	11.68	0	0	0	0				
.	W	15B-20s3c-4	0.049	n	4.16	0.06	160	160	665	9				
.	W	12F-0sw	0.065	e	5.63	0.63	0	0	0	0				
11	└─G	1D-c2ovd	0.310	e	26.85	34.92	0	0	0	0				
	W	15B-20s3c-4	0.049	e	4.16	0.06	58	58	241	3				
	W	12F-0sw	0.065	s	5.63	0.63	0	0	0	0				
	├─G	2 glazing, dr outr,	0.310	s	26.85	18.62	0	0	0	0				
	└─D	11D0	0.390	s	33.77	8.17	0	0	0	0				
	W	15B-20s3c-4	0.049	s	4.16	0.06	160	160	665	9				
	W	12F-0sw	0.065	w	5.63	0.63	0	0	0	0				
	└─G	1D-c2ovd	0.310	w	26.85	34.92	0	0	0	0				
	W	15B-20s3c-4	0.049	w	4.16	0.06	58	58	241	3				
	C	18A-38ad	0.029	-	2.51	0.48	0	0	0	0				
	C	18A-38md	0.029	-	2.51	0.48	0	0	0	0				
	F	21A-32t	0.020	-	1.73	0.00	580	580	1005	0				
6	c) AED excursion									-2				
	Envelope loss/gain								2817	22				
12	a) Infiltration								193	21				
	b) Room ventilation								0	0				
13	Internal gains:	Occupants @	230				0			0				
		Appliances/other								0				
	Subtotal (lines 6 to 13)								3010	44				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								3010	44				
15	Duct loads						-0%	0%	0	0				
	Total room load								3010	44				
	Air required (cfm)								104	4				

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Crawlspace



Job #: #1063 Jones Sledhaus
Performed by Kevin Rice for:
Jones Sledhaus
28935 Yellow Jacket Dr.
Oak Creek, CO

Copper Canyon Consulting LLC.
857 W. Tortoise Cir.
Saratoga Springs, UT 84045
Phone: 801-362-1878

Scale: 1 : 67

Right-Suite® Universal 2022
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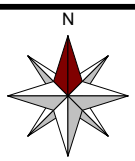
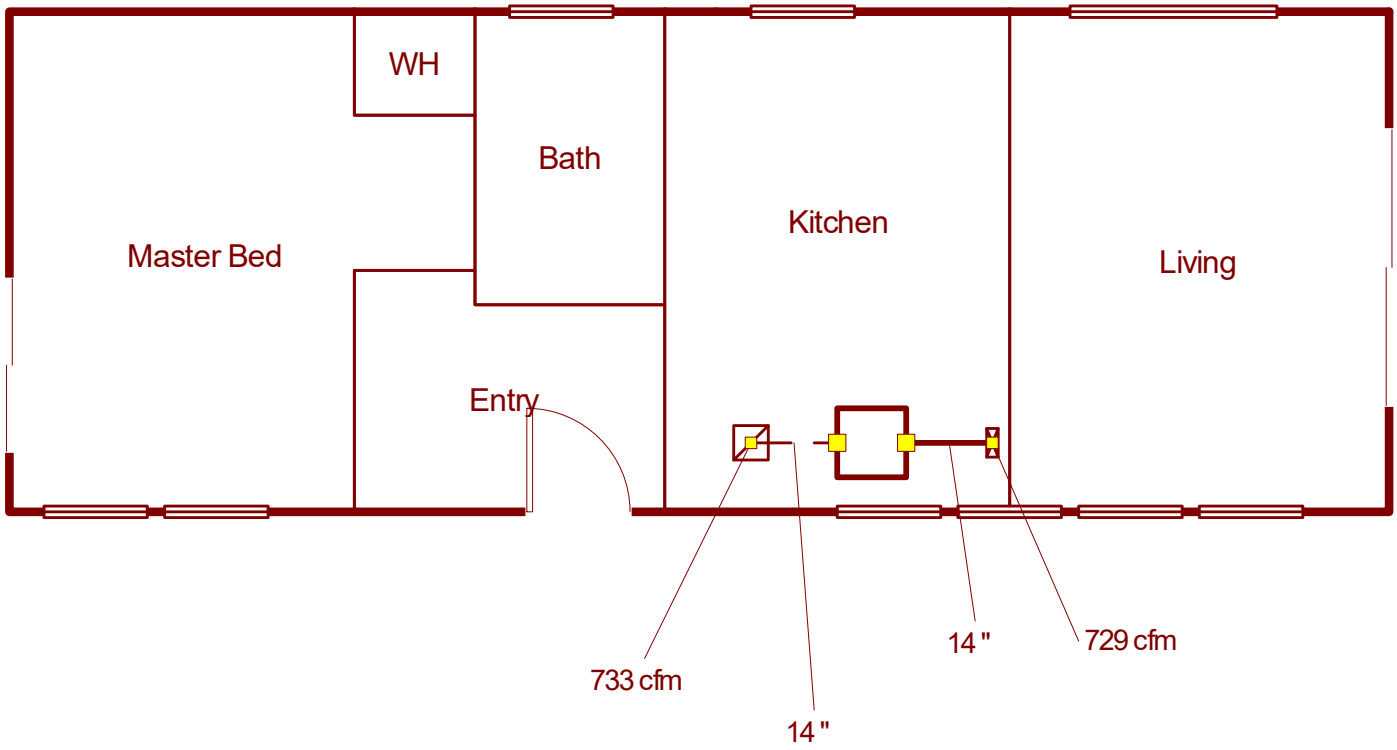


Main Level



Job #: #1063 Jones Sledhaus
Performed by Kevin Rice for:
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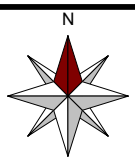
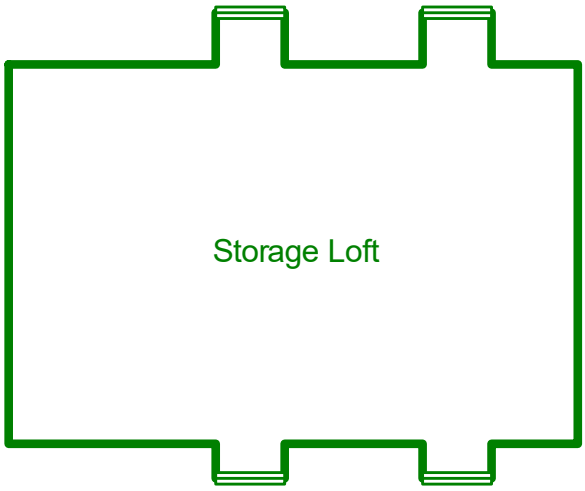


Loft Level



Job #: #1063 Jones Sledhaus
Performed by Kevin Rice for:
Jones Sledhaus
28935 Yellow Jacket Dr.
Oak Creek, CO

Copper Canyon Consulting LLC.
857 W. Tortoise Cir.
Saratoga Springs, UT 84045
Phone: 801-362-1878

Scale: 1 : 67

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Duct System Summary
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

	Heating	Cooling
External static pressure	***0.40*** in H2O	***0.40*** in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	0.24 in H2O	0.24 in H2O
Supply / return available pressure	0.157 / 0.083 in H2O	0.157 / 0.083 in H2O
Lowest friction rate	0.133 in/100ft	0.133 in/100ft
Actual air flow	733 cfm	733 cfm
Total effective length (TEL)	180 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Crawlspace	h 44	104	4	0	0	0x 0	ShMt	0	0	
Kitchen-B	c 8480	629	729	0.133	14.0	0x 0	ShMt	2.5	115.0	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb2	0x 0	733	733	62.5	0.133	686	14.0	0x 0		ShMt	

Bold/italic values have been manually overridden

Static Pressure and Friction Rate
Entire House
Copper Canyon Consulting LLC.

Job: #1063 Jones Sledhaus
Date: September 14, 2022
By: Kevin Rice

857 W. Tortoise Cir., Saratoga Springs, UT 84045 Phone: 801-362-1878

Project Information

For: Jones Sledhaus
28935 Yellow Jacket Dr., Oak Creek, CO

Available Static Pressure

	Heating (in H2O)	Cooling (in H2O)
External static pressure	0.40	0.40
Pressure losses		
Coil	0.10	0.10
Heat exchanger	0	0
Supply diffusers	0.03	0.03
Return grilles	0.03	0.03
Filter	0	0
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.24	0.24

Total Effective Length

	Supply (ft)	Return (ft)
Measured length of run-out	3	3
Measured length of trunk	0	0
Equivalent length of fittings	115	60
Total length	118	63
Total effective length		180

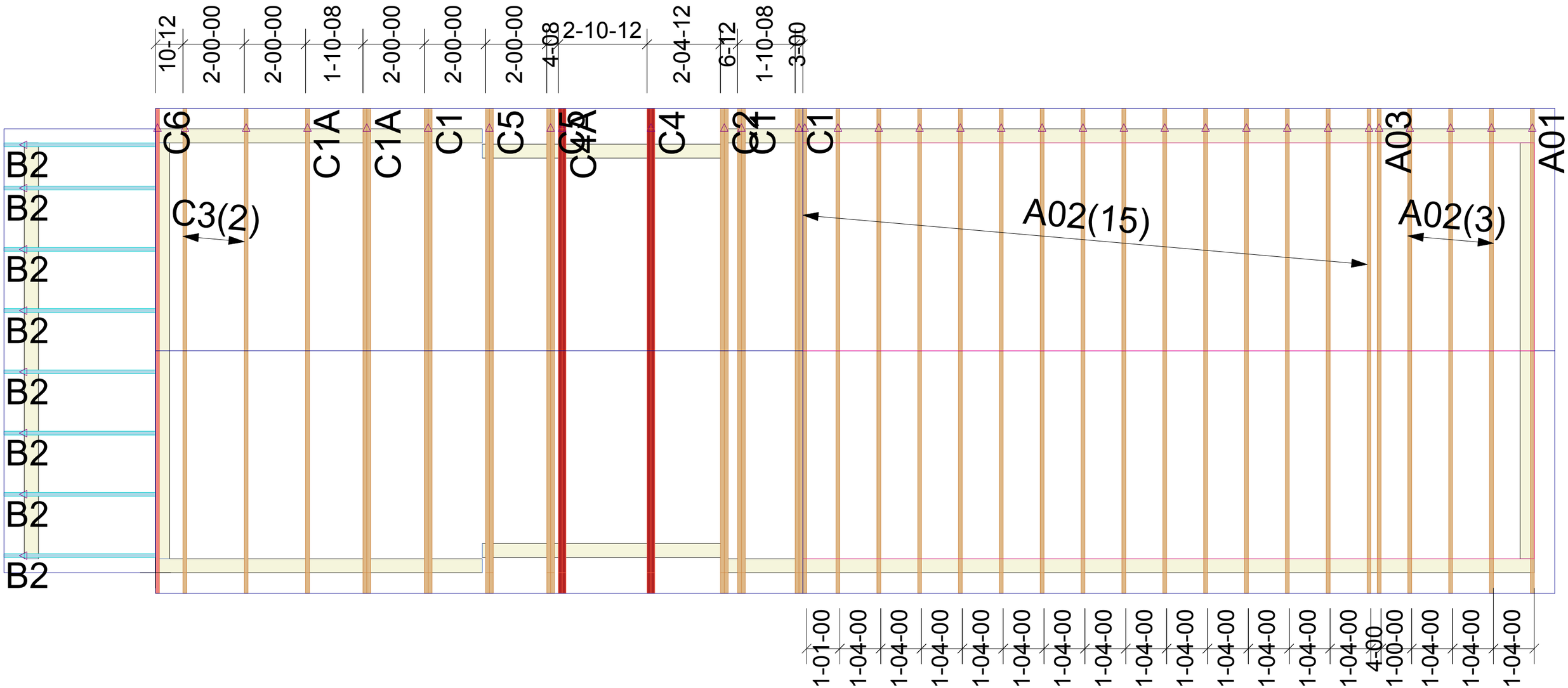
Friction Rate

	Heating (in/100ft)		Cooling (in/100ft)	
Supply Ducts	0.133	OK	0.133	OK
Return Ducts	0.133	OK	0.133	OK

Fitting Equivalent Length Details

Supply 1A=35, 4G=80: TotalEL=115

Return 5D=40, 6M=20: TotalEL=60



DO NOT CUT OR MODIFY TRUSSES

without authorization from SUNPRO. Please contact your sales representative prior to any modification and/or repairs that may need to be made. Any back charges as a result of damage or modifications made without the consent of Sunroc Building Materials will not be honored. Refer to BCSI-B1 sheet for HANDLING, INSTALLING, RESTRAINING AND BRACING OF TRUSSES. Truss layout is for placement only, refer to truss drawings for spacing, bracing, multi-ply nailing and bearing requirements.

Date: 7/8/2022
Loading xx-10-0-5

Jones SLEDHOUSE

IRON TOWN HOMES

28935 YELLOW JACKET DRIVE, OAK CREEK, CO 80467

Sales Rep: Dane Reid (801) 592-9315
Designer:

SUNPRO

520 South 800 West Lindon, UT 84042
Office (801) 222-3300

Order # 221326

MiTek USA, Inc.
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661
Telephone 916-755-3571

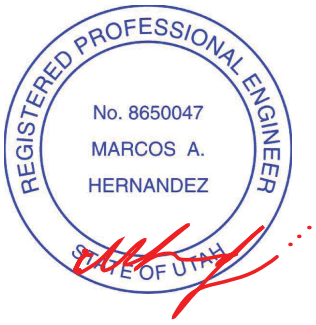
Re: 221326
Jones SLEDHOUSE

The truss drawing(s) referenced below have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Sunpro Corporation (Lindon, UT).

Pages or sheets covered by this seal: R71487899 thru R71487910

My license renewal date for the state of Utah is March 31, 2023.

Lumber design values are in accordance with ANSI/TPI 1 section 6.3
These truss designs rely on lumber values established by others.



July 8,2022

Hernandez, Marcos

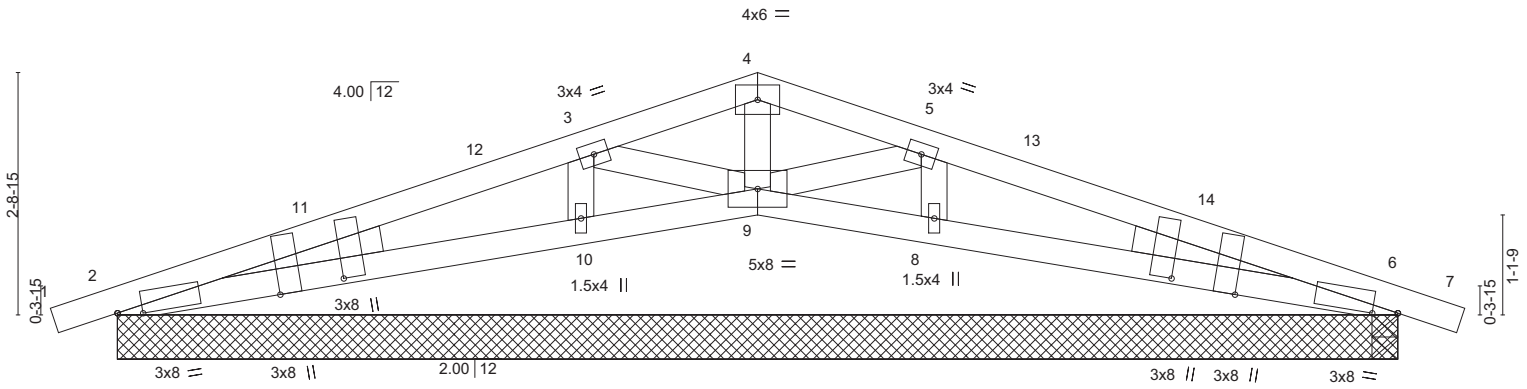
IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MiTek or TRENCO. Any project specific information included is for MiTek's or TRENCO's customers file reference purpose only, and was not taken into account in the preparation of these designs. MiTek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSI/TPI 1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	A01	GABLE	1	1	R71487899
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:07 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-F9WDxUAohb5vAApPxDoxH0Tx923_K3PPAOm?YJz_NQY

-0-8-0 0-8-0 | 7-3-0 7-3-0 | 14-6-0 7-3-0 | 15-2-0 0-8-0

Scale = 1:26.1



7-3-0 7-3-0 | 14-6-0 7-3-0

Plate Offsets (X,Y)-- [2:0-3-7,0-0-9], [2:0-1-2,Edge], [2:0-0-6,2-7-2], [6:0-3-7,0-0-9], [6:0-1-2,Edge], [6:0-0-6,2-7-2]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.97	Vert(LL)	-0.06	2-10	>978	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.95	Vert(CT)	-0.07	2-10	>857	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.37	Horz(CT)	0.02	6	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 56 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x4 DF No.2
BOT CHORD 2x4 DF No.2
WEBS 2x4 DF Stud
OTHERS 2x4 DF Stud
WEDGE
Left: 2x4 DF Stud , Right: 2x4 DF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except:
2-2-0 oc bracing: 2-10.

REACTIONS. All bearings 14-6-0.
(lb) - Max Horz 2=33(LC 12)
Max Uplift All uplift 100 lb or less at joint(s) 2, 6 except 9=-106(LC 8)
Max Grav All reactions 250 lb or less at joint(s) 10, 8 except 2=870(LC 19), 6=894(LC 20), 6=619(LC 1), 9=979(LC 1)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1530/192, 4-5=-28/252, 5-6=-1492/183
BOT CHORD 2-10=-133/1306, 9-10=-129/1281, 8-9=-120/1245, 6-8=-123/1269
WEBS 3-9=-1618/277, 5-9=-1552/267

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-8-9 to 2-3-7, Interior(1) 2-3-7 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-2-9, Exterior(2E) 12-2-9 to 15-2-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
2) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
3) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 16.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
6) Gable studs spaced at 2-0-0 oc.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 6 except (jt=lb) 9=106.
10) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

July 8,2022

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ***ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information*** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601

MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	A02	Scissor	18	1	R71487900
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:08 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-jM4c9qBQSuDmnJNcVwKApD096SR93TDZP2VY4mz_NQX

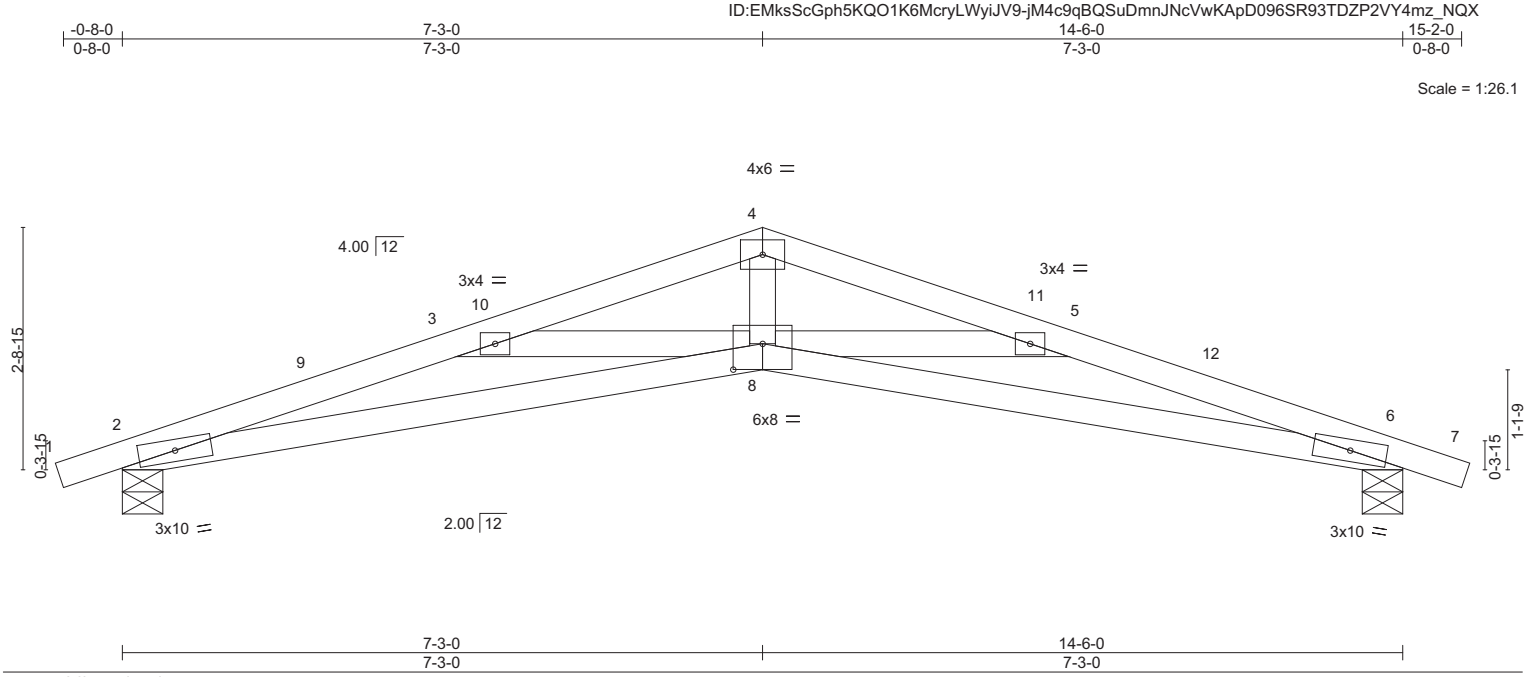


Plate Offsets (X,Y)-- [8:0-4-0,0-3-8]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.77	Vert(LL)	-0.34	8	>493	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.83	Vert(CT)	-0.39	8	>431	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.52	Horz(CT)	0.21	6	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 53 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x4 DF No.2
BOT CHORD 2x4 DF 1800F 1.6E
WEBS 2x4 DF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins.
BOT CHORD Rigid ceiling directly applied or 9-3-15 oc bracing.

REACTIONS. (size) 2=0-5-8, 6=0-5-8
Max Horz 2=32(LC 16)
Max Uplift 2=-125(LC 8), 6=-125(LC 9)
Max Grav 2=1454(LC 19), 6=1454(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-4428/715, 3-4=-3141/544, 4-5=-3141/544, 5-6=-4428/715
BOT CHORD 2-8=-634/4073, 6-8=-634/4073
WEBS 4-8=-201/1359, 3-8=-1382/195, 5-8=-1382/195

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-8-9 to 2-3-7, Interior(1) 2-3-7 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-2-9, Exterior(2E) 12-2-9 to 15-2-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
2) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
3) Unbalanced snow loads have been considered for this design.
4) This truss has been designed for greater of min roof live load of 16.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
5) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
6) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
7) Bearing at joint(s) 2, 6 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=125, 6=125.
9) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

July 8,2022

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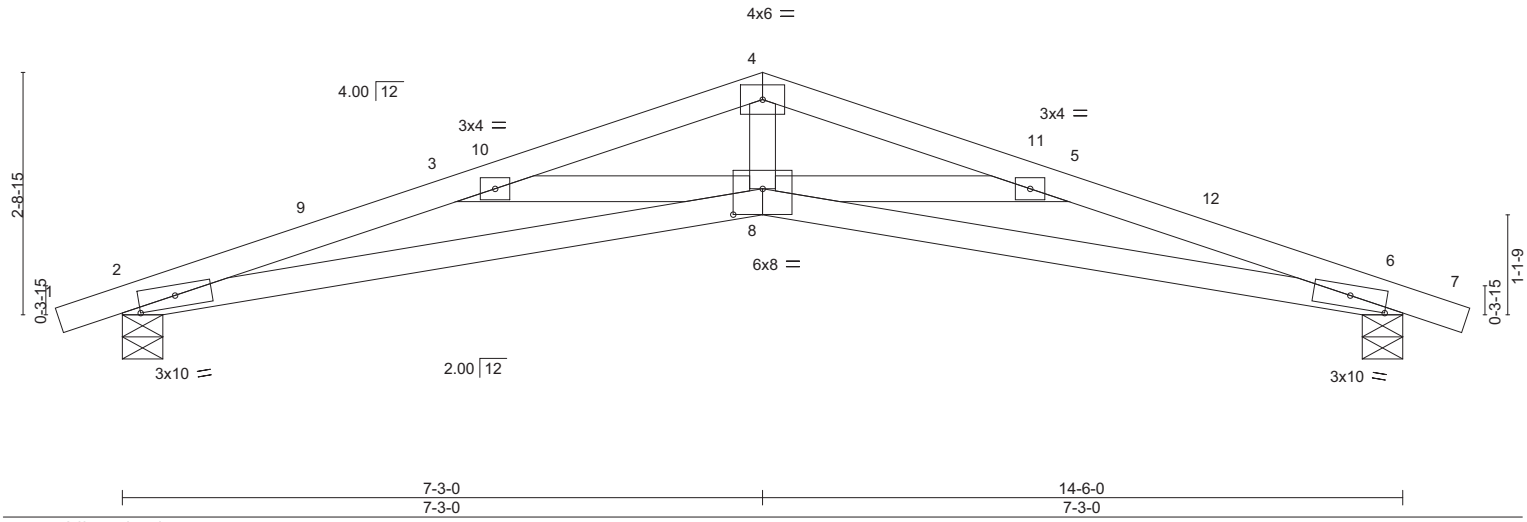
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	A03	SCISSORS	1	1	R71487901
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:09 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-BYe_MAB2DCLdPTyo3erPMRYIlsl4owTidiF5dCz_NQW

-0-8-0 7-3-0 14-6-0 15-2-0
0-8-0 7-3-0 7-3-0 0-8-0

Scale = 1:26.1



7-3-0 14-6-0
7-3-0 7-3-0

Plate Offsets (X,Y)-- [2:0-5-0,0-1-9], [6:0-5-0,0-1-9], [8:0-4-0,0-3-8]

LOADING (psf)		SPACING-	1-4-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.90	Vert(LL)	-0.34	8	>493	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.91	Vert(CT)	-0.39	8	>431	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.52	Horz(CT)	0.21	6	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 53 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x4 DF No.2
BOT CHORD 2x4 DF 1800F 1.6E
WEBS 2x4 DF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 1-8-1 oc purlins.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 2=0-5-8, 6=0-5-8
Max Horz 2=-32(LC 53)
Max Uplift 2=-278(LC 34), 6=-278(LC 37)
Max Grav 2=1454(LC 19), 6=1454(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-4428/1107, 3-4=-3141/582, 4-5=-3141/586, 5-6=-4428/1088
BOT CHORD 2-8=-1054/4073, 6-8=-1010/4073
WEBS 4-8=-201/1359, 3-8=-1382/231, 5-8=-1382/237

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-8-9 to 2-3-7, Interior(1) 2-3-7 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-2-9, Exterior(2E) 12-2-9 to 15-2-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
2) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
3) Unbalanced snow loads have been considered for this design.
4) This truss has been designed for greater of min roof live load of 16.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
5) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
6) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
7) Bearing at joint(s) 2, 6 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=278, 6=278.
9) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
10) This truss has been designed for a total drag load of 1600 lb. Lumber DOL=(1.33) Plate grip DOL=(1.33) Connect truss to resist drag loads along bottom chord from 0-0-0 to 14-6-0 for 110.3 plf.

July 8,2022

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Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ***ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information*** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601

MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	B2	JACK-OPEN	8	1	R71487902
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:10 2022 Page 1
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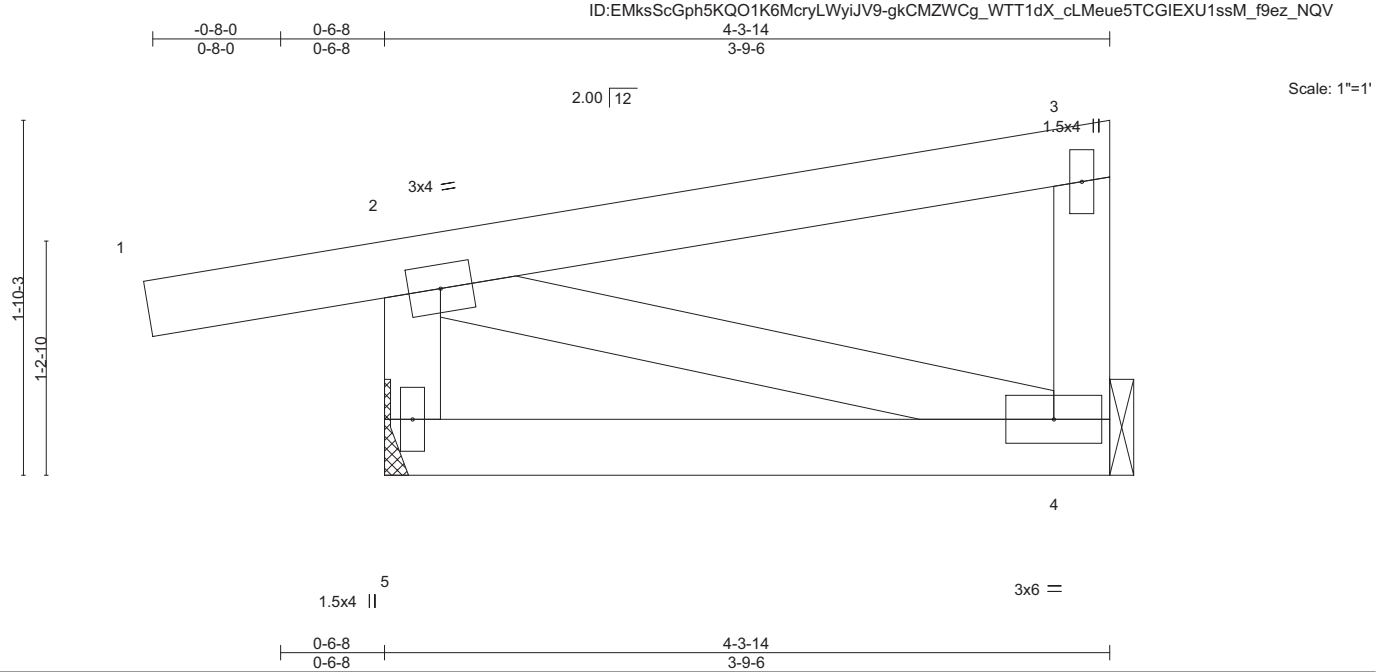

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.92	Vert(LL)	-0.01	4-5	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.09	Vert(CT)	-0.01	4-5	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.12	Horz(CT)	-0.00	4	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-P							Weight: 19 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x4 DF No.2
BOT CHORD 2x4 DF No.2
WEBS 2x4 DF Stud *Except*
2-5: 2x4 DF No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (size) 5=Mechanical, 4=Mechanical
Max Horz 5=38(LC 8)
Max Uplift 5=-104(LC 8), 4=-63(LC 18)
Max Grav 5=983(LC 19), 4=436(LC 19)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
WEBS 2-5=-966/272, 3-4=-419/122

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
2) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
3) Unbalanced snow loads have been considered for this design.
4) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
5) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
6) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
7) Refer to girder(s) for truss to truss connections.
8) Refer to girder(s) for truss to truss connections.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 4 except (jt=lb) 5=104.
10) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

July 8,2022

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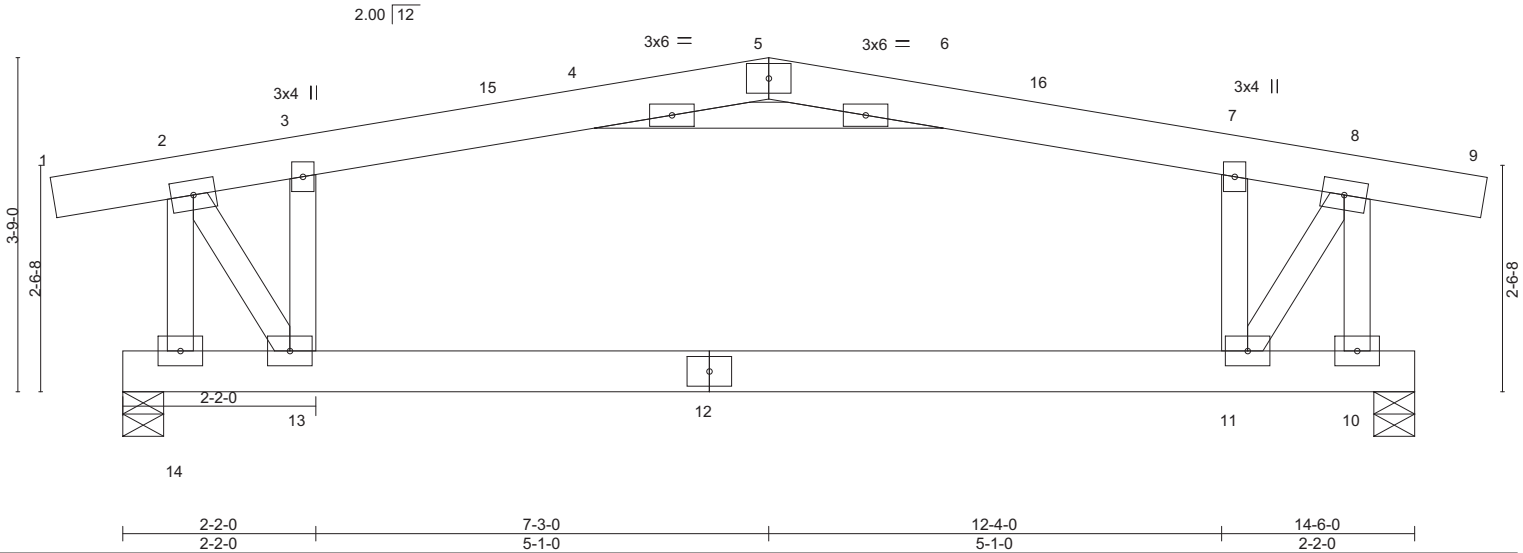
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C1	COMMON	3	2	R71487903
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:11 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-8xlknsDIlpbKen6AA3ttRseiHgZKGrB?50kCh5z_NQU

-0-8-0 | 2-2-0 | 7-3-0 | 12-4-0 | 14-6-0 | 15-2-0
0-8-0 | 2-2-0 | 5-1-0 | 5-1-0 | 2-2-0 | 0-8-0

Scale = 1:25.9



2-2-0 | 7-3-0 | 12-4-0 | 14-6-0
2-2-0 | 5-1-0 | 5-1-0 | 2-2-0

LOADING (psf)		**SPACING-**	2-0-0	**CSI.**		**DEFL.**	in (loc)	l/defl	L/d
TCLL	101.0	Plate Grip DOL	1.00	TC	0.65	Vert(LL)	-0.04 11-13	>999	240
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.42	Vert(CT)	-0.06 11-13	>999	180
TCDL	10.0	Rep Stress Incr	NO	WB	0.51	Horz(CT)	0.01 10	n/a	n/a
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH					
BCDL	5.0								

PLATES	**GRIP**
MT20	220/195
Weight: 173 lb	FT = 20%

LUMBER-

TOP CHORD	2x6 DF No.2
BOT CHORD	2x6 DF No.2
WEBS	2x4 DF Stud

BRACING-

TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 14=0-5-8, 10=0-5-8
Max Horz 14=-64(LC 10)
Max Uplift 14=-218(LC 8), 10=-218(LC 9)
Max Grav 14=2212(LC 19), 10=2212(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1340/287, 3-4=-1592/354, 4-5=-2618/620, 5-6=-2618/620, 6-7=-1592/354, 7-8=-1340/287, 2-14=-2211/431, 8-10=-2211/431
BOT CHORD 11-13=-191/1421
WEBS 3-13=-1811/366, 2-13=-437/2646, 7-11=-1811/366, 8-11=-437/2646, 4-6=-266/1162

NOTES-

1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
   Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.
   Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
   Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-0-4, Interior(1) 2-0-4 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) All plates are 4x6 MT20 unless otherwise indicated.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 14=218, 10=218.
11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

LOAD CASE(S) Standard

REGISTERED PROFESSIONAL ENGINEER
No. 8650047
MARCOS A.
HERNANDEZ
STATE OF UTAH

July 8,2022

Continued on page 2

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ***ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information*** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601

MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-2=-222, 2-5=-222, 5-8=-222, 8-9=-222, 13-14=-10, 11-13=-40(F=-30), 10-11=-10

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
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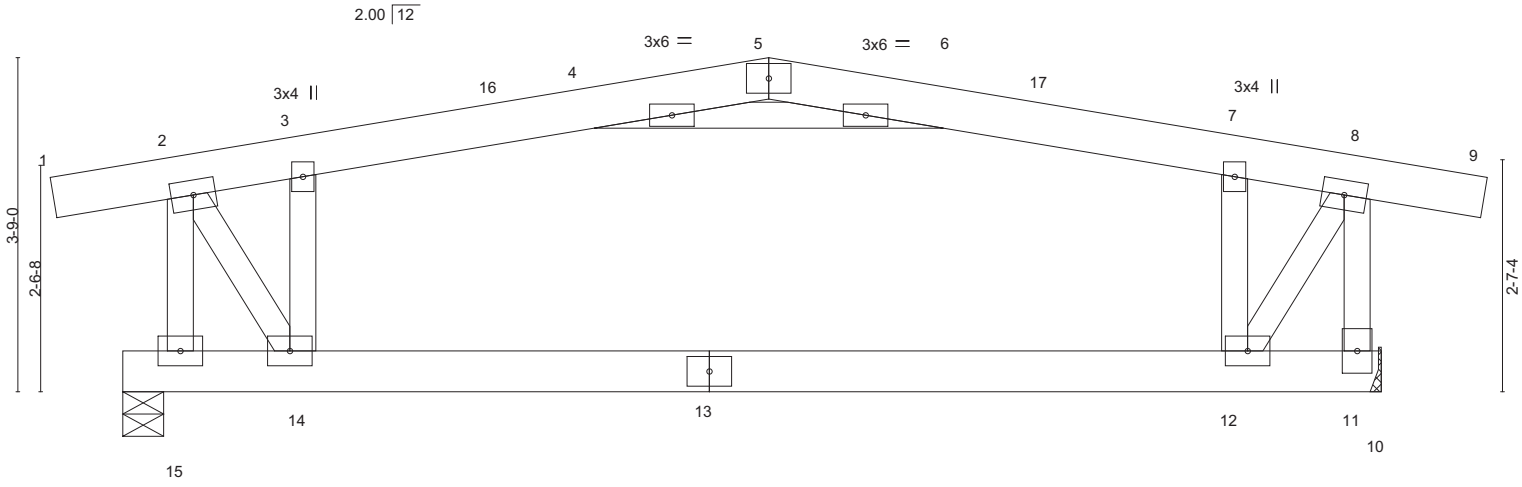
MiTek
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C1A	COMMON	2	2	R71487904
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:12 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-c7J6_BExW7kBGxhNkmO6_3At13uZ?HQ8KgTmDXz_NQT

-0-8-0 | 2-2-0 | 7-3-0 | 12-4-0 | 14-6-0 | 15-2-0
0-8-0 | 2-2-0 | 5-1-0 | 5-1-0 | 2-2-0 | 0-8-0

Scale = 1:25.9



2-2-0 | 7-3-0 | 12-4-0 | 14-1-8 | 14-6-0
2-2-0 | 5-1-0 | 5-1-0 | 1-9-8 | 0-4-8

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.65	Vert(LL)	-0.04	12-14	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.42	Vert(CT)	-0.06	12-14	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.51	Horz(CT)	0.01	11	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 172 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x6 DF No.2
BOT CHORD 2x6 DF No.2
WEBS 2x4 DF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 15=0-5-8, 11=Mechanical
Max Horz 15=-64(LC 10)
Max Uplift 15=-218(LC 8), 11=-216(LC 9)
Max Grav 15=2212(LC 19), 11=2215(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1339/293, 3-4=-1592/361, 4-5=-2618/632, 5-6=-2618/632, 6-7=-1592/361, 7-8=-1339/293, 2-15=-2211/439, 8-11=-2210/439
BOT CHORD 12-14=-197/1420
WEBS 3-14=-1811/375, 2-14=-448/2646, 7-12=-1811/375, 8-12=-448/2643, 4-6=-272/1162

NOTES-
1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-0-4, Interior(1) 2-0-4 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) All plates are 4x6 MT20 unless otherwise indicated.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
10) Refer to girder(s) for truss to truss connections.
11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 15=218, 11=216.
12) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

REGISTERED PROFESSIONAL ENGINEER
No. 8650047
MARCOS A.
HERNANDEZ
STATE OF UTAH
July 8,2022

LOAD CASE(S) Standard

Continued on page 2

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ***ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information*** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601

MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-2=-222, 2-5=-222, 5-8=-222, 8-9=-222, 14-15=-10, 12-14=-40(F=-30), 10-12=-10

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
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MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C2	COMMON	1	2	R71487905
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:13 2022 Page 1
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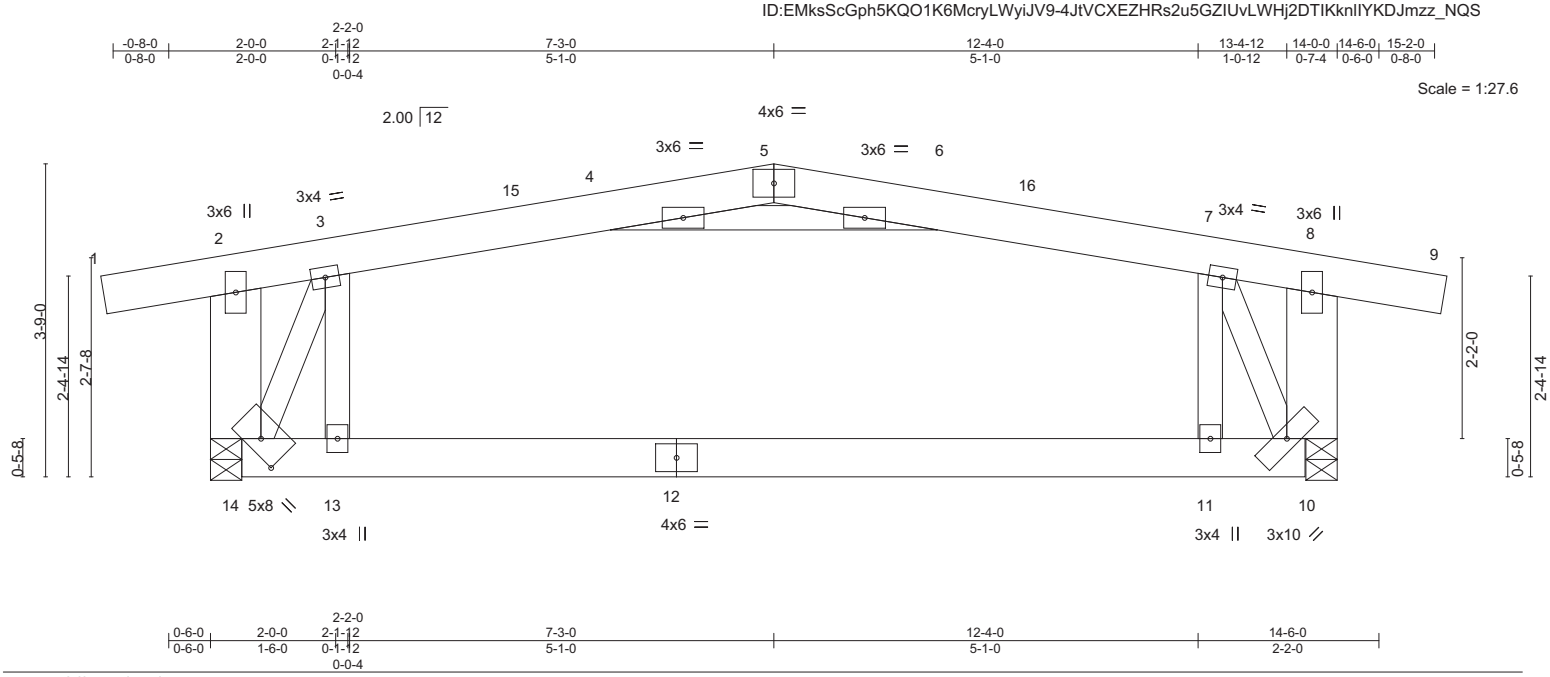

Plate Offsets (X,Y)-- [14:0-4-0,0-1-15]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.68	Vert(LL)	-0.03	11-13	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.19	Vert(CT)	-0.04	11-13	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.31	Horz(CT)	0.01	10	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 177 lb	FT = 20%
BCDL	5.0											

LUMBER-

TOP CHORD	2x6 DF No.2
BOT CHORD	2x6 DF 2400F 2.0E
WEBS	2x4 DF Stud *Except* 8-10: 2x8 DF SS
OTHERS	2x8 DF SS

BRACING-

TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 14=0-4-8, 10=0-4-8
Max Horz 14=-65(LC 10)
Max Uplift 14=-223(LC 8), 10=-223(LC 9)
Max Grav 14=2223(LC 19), 10=2223(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.

TOP CHORD	3-4=-1490/353, 4-5=-2584/644, 5-6=-2584/644, 6-7=-1490/353, 2-14=-741/557, 8-10=-741/557
BOT CHORD	13-14=-185/1317, 11-13=-185/1317, 10-11=-185/1317
WEBS	7-11=0/656, 3-14=-2830/528, 7-10=-2830/528, 3-13=0/656, 4-6=-291/1232

NOTES-

1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
   Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x8 - 2 rows staggered at 0-9-0 oc.
   Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
   Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-0-4, Interior(1) 2-0-4 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Bearing at joint(s) 14, 10 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 14=223, 10=223.
11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and

Continued on page 2

continued standard ANSI/TPI 1.

July 8,2022

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MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-5=-222, 5-8=-222, 8-9=-222, 13-14=-10, 11-13=-40(F=-30), 10-11=-10

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
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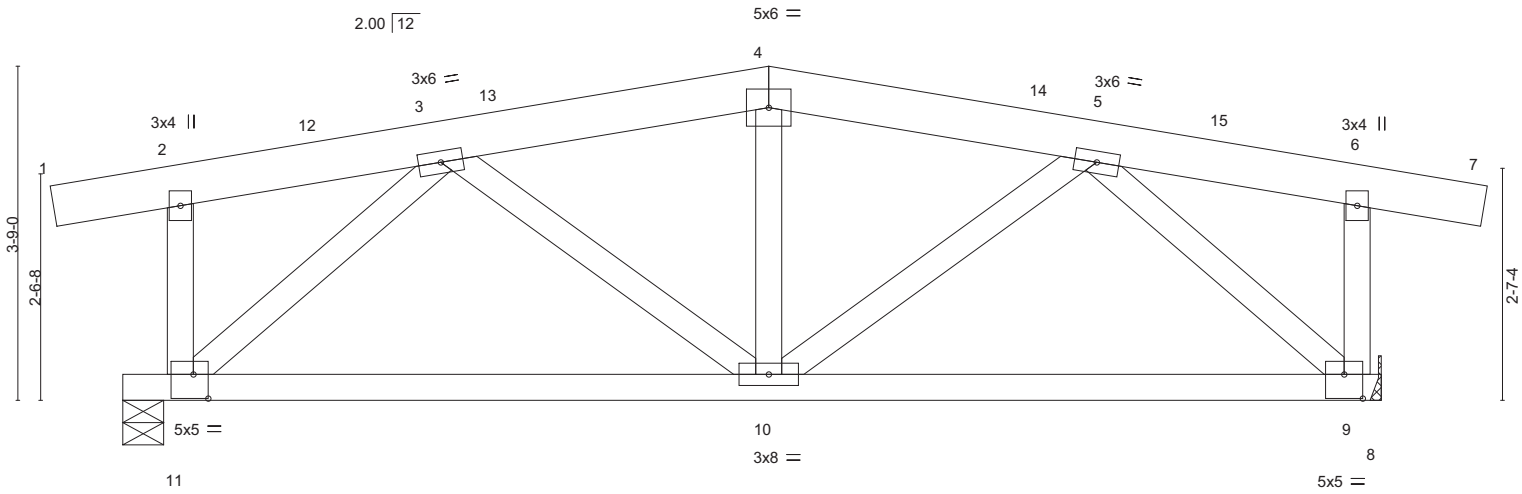
MiTek
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C3	COMMON	2	1	R71487906
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:14 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-YVRtPtFB1k_vWErlrBQa3UGHItbOTAyRn_ysIQz_NQR

-0-8-0 | 3-9-4 | 7-3-0 | 10-8-12 | 14-6-0 | 15-2-0
0-8-0 | 3-9-4 | 3-5-12 | 3-5-12 | 3-9-4 | 0-8-0

Scale = 1:25.9



7-3-0 | 14-1-8 | 14-6-0
7-3-0 | 6-10-8 | 0-4-8

Plate Offsets (X,Y)-- [9:0-2-8,0-3-4], [11:0-2-0,0-3-4]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.40	Vert(LL)	-0.04	10-11	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.33	Vert(CT)	-0.06	10-11	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.57	Horz(CT)	0.02	9	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 85 lb	FT = 20%
BCDL	5.0											

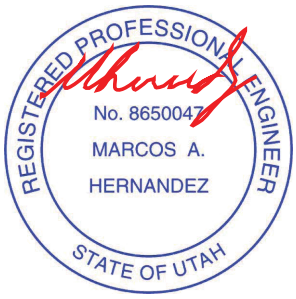
LUMBER-
TOP CHORD 2x6 DF No.2
BOT CHORD 2x4 DF No.2
WEBS 2x4 DF Stud

BRACING-
TOP CHORD Structural wood sheathing directly applied or 5-11-6 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 11=0-5-8, 9=Mechanical
Max Horz 11=68(LC 11)
Max Uplift 11=-202(LC 8), 9=-200(LC 9)
Max Grav 11=2055(LC 19), 9=2058(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 3-4=-1576/358, 4-5=-1576/358, 2-11=-848/217, 6-9=-850/216
BOT CHORD 10-11=-163/1242, 9-10=-162/1243
WEBS 4-10=-325/91, 5-10=-40/554, 3-10=-39/556, 3-11=-1704/289, 5-9=-1700/292

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-2-11, Interior(1) 2-2-11 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
2) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
3) Unbalanced snow loads have been considered for this design.
4) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
5) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
6) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
7) Refer to girder(s) for truss to truss connections.
8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 11=202, 9=200.
9) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.



July 8,2022

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MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C4	COMMON	1	2	R71487907
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:15 2022 Page 1
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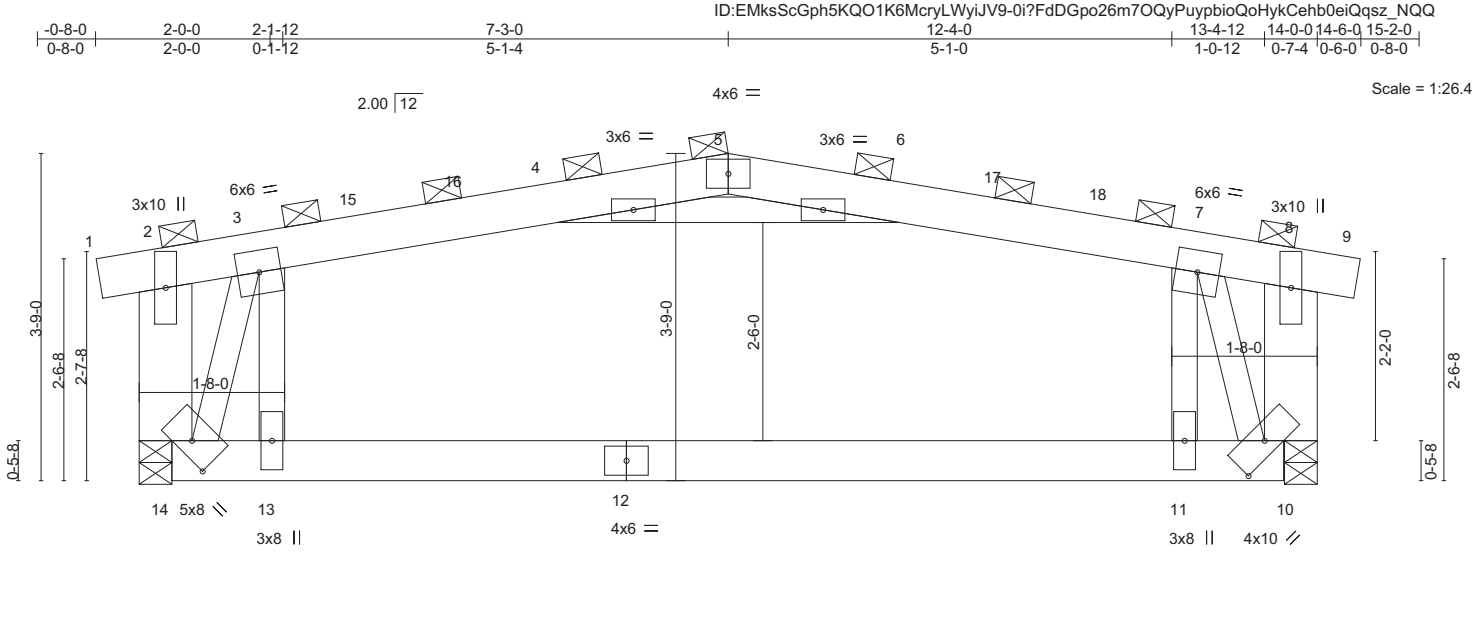

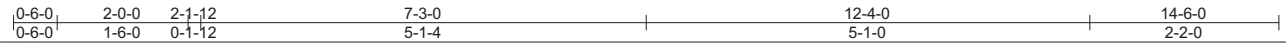

Plate Offsets (X,Y)-- [10:0-5-0,0-1-14], [14:0-4-0,0-1-15]

LOADING (psf)		SPACING-	3-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.55	Vert(LL)	-0.04	11-13	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.26	Vert(CT)	-0.05	11-13	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.48	Horz(CT)	0.01	10	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 169 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x6 DF 2400F 2.0E
BOT CHORD 2x6 DF 2400F 2.0E
WEBS 2x4 DF Stud *Except*
8-10: 2x8 DF SS
OTHERS 2x8 DF SS

BRACING-
TOP CHORD 2-0-0 oc purlins (6-0-0 max.), except end verticals
(Switched from sheeted: Spacing > 2-8-0).
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (size) 14=0-4-8, 10=0-4-8
Max Horz 14=-102(LC 10)
Max Uplift 14=-268(LC 8), 10=-268(LC 9)
Max Grav 14=2876(LC 19), 10=2876(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 3-4=-2254/556, 4-5=-3919/979, 5-6=-3919/979, 6-7=-2254/556, 2-14=-446/1296, 8-10=-446/1296
BOT CHORD 13-14=-324/1960, 11-13=-317/1984, 10-11=-324/1960
WEBS 7-11=-147/805, 7-10=-4336/872, 3-14=-4336/872, 3-13=-147/805, 4-6=-424/1882

NOTES-
1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x8 - 2 rows staggered at 0-9-0 oc.
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) 0-0-8 to 3-0-8, Interior(1) 3-0-8 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 11-5-8, Exterior(2E) 11-5-8 to 14-5-8 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Bearing at joint(s) 14, 10 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 14=268, 10=268.
11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and
Continued on page 2
ANSI/TPI 1.

July 8,2022

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MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

NOTES-

12) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-5=-333, 5-8=-333, 8-9=-333, 13-14=-15, 11-13=-45(F=-30), 10-11=-15

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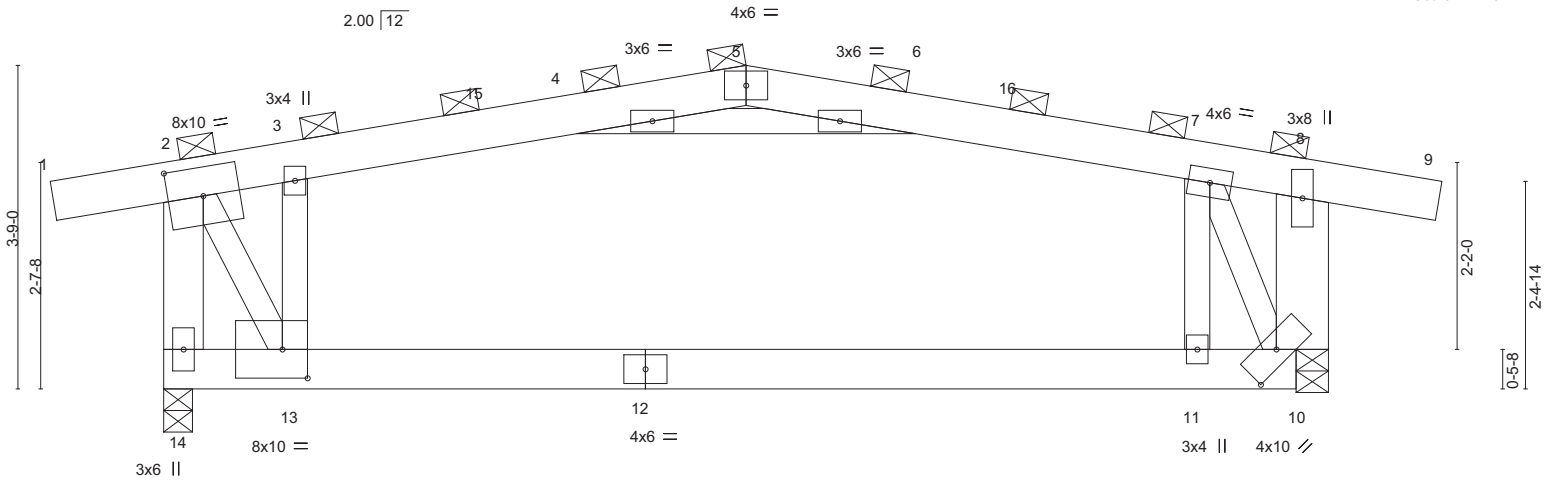
MiTek
MiTek USA, Inc.
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C4A	COMMON	1	2	R71487908
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:16 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-UuZdqZHRZMEdlY?8zcT28vLb2hJ8x2RkEIRzMIz_NQP

-0-8-0 | 2-2-0 | 7-3-0 | 12-4-12 | 13-4-12 | 14-0-0 | 14-6-0 | 15-2-0
0-8-0 | 2-2-0 | 5-1-0 | 5-1-0 | 1-0-12 | 0-7-4 | 0-6-0 | 0-8-0

Scale = 1:26.7



0-6-0 | 2-2-0 | 7-3-0 | 12-4-0 | 14-6-0
0-6-0 | 1-8-0 | 5-1-0 | 5-1-0 | 2-2-0

Plate Offsets (X,Y)-- [2:0-4-15,0-4-0], [10:0-5-0,0-1-15], [13:0-3-8,0-4-0]

LOADING (psf)		SPACING-	3-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.52	Vert(LL)	-0.04	11-13	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.25	Vert(CT)	-0.05	11-13	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.70	Horz(CT)	0.01	10	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 176 lb	FT = 20%
BCDL	5.0											

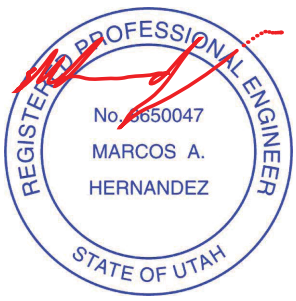
LUMBER-
TOP CHORD 2x6 DF 2400F 2.0E
BOT CHORD 2x6 DF 2400F 2.0E
WEBS 2x4 DF Stud *Except*
8-10: 2x8 DF SS
OTHERS 2x6 DF No.2

BRACING-
TOP CHORD 2-0-0 oc purlins (6-0-0 max.), except end verticals
(Switched from sheeted: Spacing > 2-8-0).
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 14=0-4-0, 10=0-4-8
Max Horz 14=98(LC 11)
Max Uplift 14=-322(LC 8), 10=-327(LC 9)
Max Grav 14=3238(LC 19), 10=3265(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1797/409, 3-4=-2186/518, 4-5=-3784/943, 5-6=-3784/944, 6-7=-2190/519, 2-14=-3061/619, 8-10=-1134/884
BOT CHORD 11-13=-266/1928, 10-11=-266/1928
WEBS 3-13=-2754/601, 7-11=-53/778, 2-13=-638/3642, 7-10=-4054/745, 4-6=-426/1804

NOTES-
1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x8 - 2 rows staggered at 0-9-0 oc.
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-0-4, Interior(1) 2-0-4 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Bearing at joint(s) 10 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 14=322, 10=327.
11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and
Continued on page 2
ANSI/TPI 1.



July 8,2022

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400 Sunrise Avenue, Suite 270
Roseville, CA 95661

NOTES-

12) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-5=-333, 5-8=-333, 8-9=-333, 13-14=-15, 11-13=-45(F=-30), 10-11=-15

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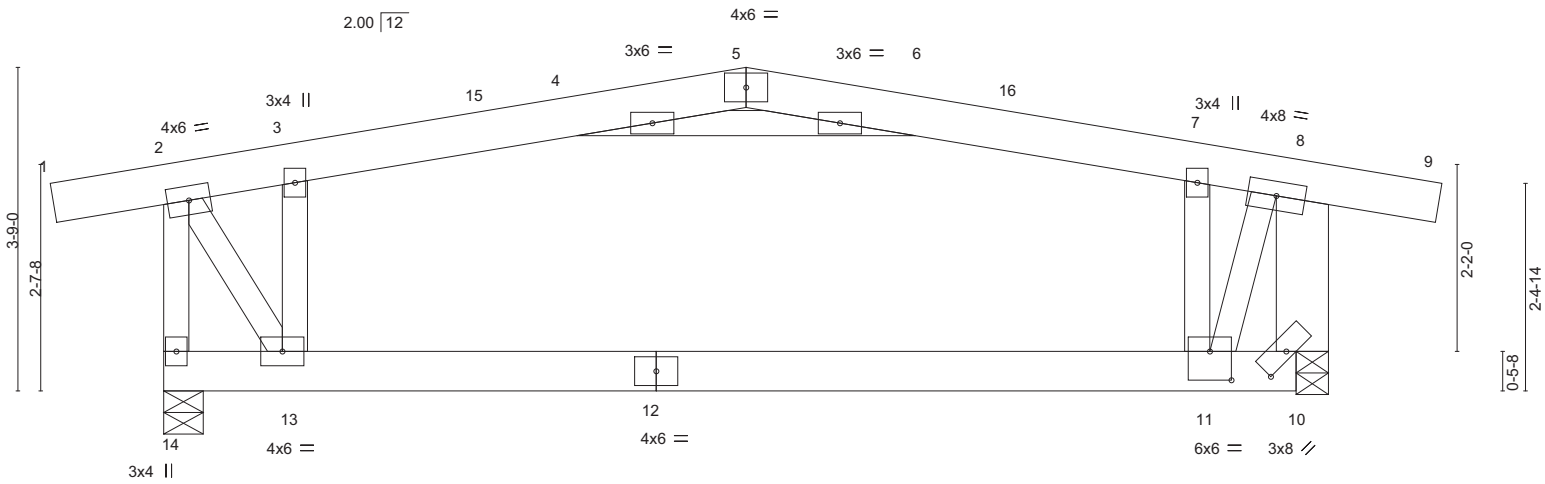
400 Sunrise Avenue, Suite 270
Roseville, CA 95661

Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C5	COMMON	2	2	R71487909
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:17 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-y47?2vI3KfMUNiZKXJ_Hh7uk04cFgXTuTyBWvkz_NQO

-0-8-0 | 2-2-0 | 7-3-0 | 12-4-0 | 13-4-12 | 14-0-0 | 14-6-0 | 15-2-0
0-8-0 | 2-2-0 | 5-1-0 | 5-1-0 | 1-0-12 | 0-7-4 | 0-6-0 | 0-8-0

Scale = 1:26.7



0-6-0 | 2-2-0 | 7-3-0 | 12-4-0 | 14-6-0
0-6-0 | 1-8-0 | 5-1-0 | 5-1-0 | 2-2-0

Plate Offsets (X,Y)-- [10:0-4-0,0-1-0], [11:0-3-0,0-4-0]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.69	Vert(LL)	-0.04	11-13	>999	240	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.45	Vert(CT)	-0.06	11-13	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.52	Horz(CT)	0.01	10	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 173 lb	FT = 20%
BCDL	5.0											

LUMBER-
TOP CHORD 2x6 DF No.2
BOT CHORD 2x6 DF No.2
WEBS 2x4 DF Stud *Except*
8-10: 2x8 DF SS

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. (size) 14=0-5-8, 10=0-4-8
Max Horz 14=65(LC 11)
Max Uplift 14=-217(LC 8), 10=-224(LC 9)
Max Grav 14=2198(LC 19), 10=2241(LC 20)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1289/293, 3-4=-1536/362, 4-5=-2615/652, 5-6=-2615/653, 6-7=-1540/363, 7-8=-1131/256, 2-14=-2170/440, 8-10=-2249/444
BOT CHORD 11-13=-195/1366
WEBS 3-13=-1773/382, 2-13=-447/2542, 7-11=-1994/445, 8-11=-484/2713, 4-6=-290/1214

NOTES-
1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc, 2x8 - 2 rows staggered at 0-9-0 oc.
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.
Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
3) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2E) -0-9-5 to 2-0-4, Interior(1) 2-0-4 to 4-3-0, Exterior(2R) 4-3-0 to 10-3-0, Interior(1) 10-3-0 to 12-3-5, Exterior(2E) 12-3-5 to 15-3-5 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.33 plate grip DOL=1.33
4) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
5) Unbalanced snow loads have been considered for this design.
6) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Bearing at joint(s) 10 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 14=217, 10=224.
11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

July 8,2022

Continued on page 2

LOAD CASE(S) Standard

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Roseville, CA 95661

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-2=-222, 2-5=-222, 5-8=-222, 8-9=-222, 13-14=-10, 11-13=-40(F=-30), 10-11=-10

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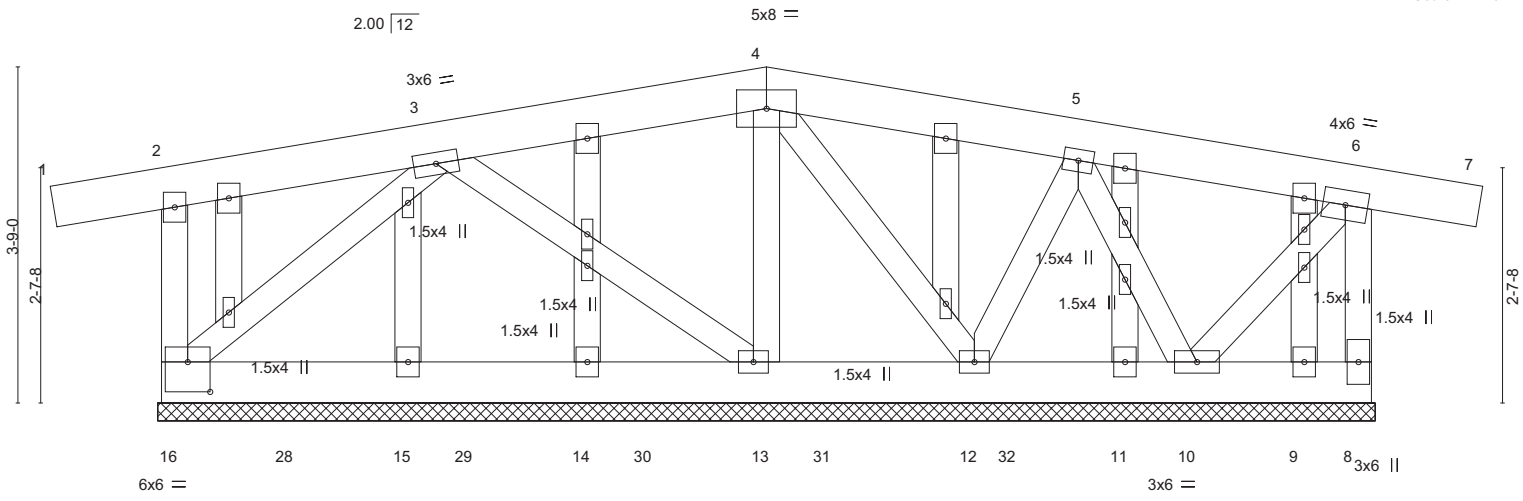
Job	Truss	Truss Type	Qty	Ply	Jones SLEDHOUSE
221326	C6	GABLE	1	1	R71487910
					Job Reference (optional)

Sunpro Corporation, Lindon, UT - 84042, 8.530 s Dec 6 2021 MiTek Industries, Inc. Thu Jul 7 18:23:19 2022 Page 1
ID:EMksScGph5KQO1K6McryLWyiJV9-vTEmSbJKsHcCc0jjek0lmYz7puJw8U1AxGgdzdz_NQM

-0-8-0 | 3-9-4 | 7-3-0 | 10-8-12 | 14-6-0 | 15-2-0
0-8-0 | 3-9-4 | 3-5-12 | 3-5-12 | 3-9-4 | 0-8-0

Scale = 1:25.7



0-5-8 | 7-3-0 | 9-6-13 | 11-10-11 | 14-6-0
0-5-8 | 6-9-8 | 2-3-13 | 2-3-13 | 2-7-5

Plate Offsets (X,Y)-- [16:0-3-0,0-4-0]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	101.0	Plate Grip DOL	1.00	TC	0.42	Vert(LL)	0.00	6	n/r	120	MT20	220/195
(Roof Snow=101.0)		Lumber DOL	1.00	BC	0.31	Vert(CT)	0.00	6	n/r	120		
TCDL	10.0	Rep Stress Incr	NO	WB	0.33	Horz(CT)	0.00	13	n/a	n/a		
BCLL	0.0 *	Code	IRC2018/TPI2014	Matrix-SH							Weight: 113 lb	FT = 20%
BCDL	5.0											

LUMBER-

TOP CHORD	2x6 DF No.2
BOT CHORD	2x6 DF No.2
WEBS	2x4 DF Stud
OTHERS	2x4 DF Stud

BRACING-

TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. All bearings 13-7-0.
(lb) - Max Horz 16=-65(LC 38)
Max Uplift All uplift 100 lb or less at joint(s) 14, 15 except 8=-490(LC 36), 13=-194(LC 42), 12=-223(LC 43), 10=-218(LC 36), 16=-632(LC 33), 11=-146(LC 6), 9=-122(LC 6)
Max Grav All reactions 250 lb or less at joint(s) except 8=1096(LC 18), 13=1433(LC 17), 12=1529(LC 18), 10=1630(LC 18), 16=1942(LC 17), 14=391(LC 18), 15=622(LC 17), 11=1077(LC 1), 9=815(LC 1)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-349/376, 3-4=-469/489, 4-5=-235/335, 5-6=-290/278, 2-16=-799/112, 6-8=-718/418
BOT CHORD 15-16=-477/752, 14-15=-169/591, 13-14=-401/718, 12-13=-288/299, 10-11=-260/263
WEBS 3-13=-926/538, 4-13=-604/267, 4-12=-444/336, 5-12=-713/443, 5-10=-754/488, 3-16=-1046/668, 6-10=-492/432

NOTES-
1) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=3.0psf; h=20ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone; cantilever left and right exposed ; end vertical left and right exposed; Lumber DOL=1.33 plate grip DOL=1.33
2) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
3) TCLL: ASCE 7-16; Pf=101.0 psf (Lum DOL=1.00 Plate DOL=1.00); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.00
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 20.0 psf or 2.00 times flat roof load of 101.0 psf on overhangs non-concurrent with other live loads.
6) All plates are 3x4 MT20 unless otherwise indicated.
7) Gable requires continuous bottom chord bearing.
8) Gable studs spaced at 2-0-0 oc.
9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
10) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 14, 15 except (jt=lb) 8=490, 13=194, 12=223, 10=218, 16=632, 11=146, 9=122.
12) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
13) Load case(s) 16, 19, 25, 26, 79, 80 has/have been modified. Building designer must review loads to verify that they are correct for the intended use of this truss.

Continued on page 2

July 8,2022

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NOTES-

14) This truss has been designed for a total drag load of 1600 lb. Lumber DOL=(1.33) Plate grip DOL=(1.33) Connect truss to resist drag loads along bottom chord from 0-0-0 to 13-6-0 for 118.5 plf.
15) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 432 lb down and 51 lb up at 0-7-12, 426 lb down and 57 lb up at 1-11-4, 426 lb down and 57 lb up at 3-11-4, 426 lb down and 57 lb up at 5-11-4, 426 lb down and 57 lb up at 7-11-4, 426 lb down and 57 lb up at 9-11-4, and 426 lb down and 57 lb up at 11-11-4, and 432 lb down and 51 lb up at 13-10-4 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
16) In the LOAD CASE(S) section, loads applied to the face of the truss are noted as front (F) or back (B).

LOAD CASE(S) Standard

1) Dead + Snow (balanced): Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-2=-222, 2-4=-222, 4-6=-222, 6-7=-222, 16-32=-10, 8-32=-690(F=-680)
   Concentrated Loads (lb)
   Vert: 8=-432(F) 10=-426(F) 16=-432(F) 28=-426(F) 29=-426(F) 30=-426(F) 31=-426(F) 32=-426(F)
16) Dead + Snow on Overhangs: Lumber Increase=1.00, Plate Increase=1.00
   Uniform Loads (plf)
   Vert: 1-2=-424, 2-4=-20, 4-6=-20, 6-7=-424, 16-32=-10, 8-32=-152(F=-142)
   Concentrated Loads (lb)
   Vert: 8=-42(F) 10=-37(F) 16=-43(F) 28=-37(F) 29=-37(F) 30=-37(F) 31=-37(F) 32=-37(F)
19) Dead: Lumber Increase=0.90, Plate Increase=0.90 Plt. metal=0.90
   Uniform Loads (plf)
   Vert: 1-2=-20, 2-4=-20, 4-6=-20, 6-7=-20, 16-32=-10, 8-32=-152(F=-142)
   Concentrated Loads (lb)
   Vert: 8=-42(F) 10=-37(F) 16=-43(F) 28=-37(F) 29=-37(F) 30=-37(F) 31=-37(F) 32=-37(F)
25) Dead + 0.6 MWFRS Wind Min. Left: Lumber Increase=1.33, Plate Increase=1.33
   Uniform Loads (plf)
   Vert: 1-2=-12, 2-4=-13, 4-6=-12, 6-7=-12, 16-32=-6, 8-32=-91(F=-85)
   Horz: 2-4=1, 2-16=16
   Concentrated Loads (lb)
   Vert: 8=38(F) 10=41(F) 16=37(F) 28=41(F) 29=41(F) 30=41(F) 31=41(F) 32=41(F)
26) Dead + 0.6 MWFRS Wind Min. Right: Lumber Increase=1.33, Plate Increase=1.33
   Uniform Loads (plf)
   Vert: 1-2=-12, 2-4=-12, 4-6=-13, 6-7=-12, 16-32=-6, 8-32=-91(F=-85)
   Horz: 4-6=-1, 6-8=-16
   Concentrated Loads (lb)
   Vert: 8=38(F) 10=41(F) 16=37(F) 28=41(F) 29=41(F) 30=41(F) 31=41(F) 32=41(F)
79) Reversal: Dead + 0.6 MWFRS Wind Min. Left: Lumber Increase=1.33, Plate Increase=1.33
   Uniform Loads (plf)
   Vert: 1-2=-12, 2-4=-13, 4-6=-12, 6-7=-12, 16-32=-6, 8-32=-91(F=-85)
   Horz: 2-4=1, 2-16=16
   Concentrated Loads (lb)
   Vert: 8=-28(F) 10=-25(F) 16=-28(F) 28=-25(F) 29=-25(F) 30=-25(F) 31=-25(F) 32=-25(F)
80) Reversal: Dead + 0.6 MWFRS Wind Min. Right: Lumber Increase=1.33, Plate Increase=1.33
   Uniform Loads (plf)
   Vert: 1-2=-12, 2-4=-12, 4-6=-13, 6-7=-12, 16-32=-6, 8-32=-91(F=-85)
   Horz: 4-6=-1, 6-8=-16
   Concentrated Loads (lb)
   Vert: 8=-28(F) 10=-25(F) 16=-28(F) 28=-25(F) 29=-25(F) 30=-25(F) 31=-25(F) 32=-25(F)

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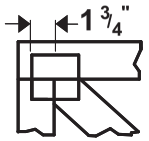
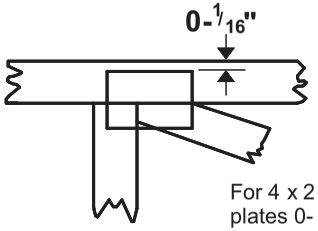
Symbols

PLATE LOCATION AND ORIENTATION



Center plate on joint unless x, y offsets are indicated. Dimensions are in ft-in-sixteenths. Apply plates to both sides of truss and fully embed teeth.



For 4 x 2 orientation, locate plates 0- 1/16" from outside edge of truss.

This symbol indicates the required direction of slots in connector plates.

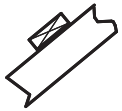
*** Plate location details available in MiTek 20/20 software or upon request.**

PLATE SIZE

4 x 4

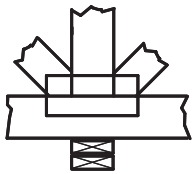
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

LATERAL BRACING LOCATION



Indicated by symbol shown and/or by text in the bracing section of the output. Use T or I bracing if indicated.

BEARING

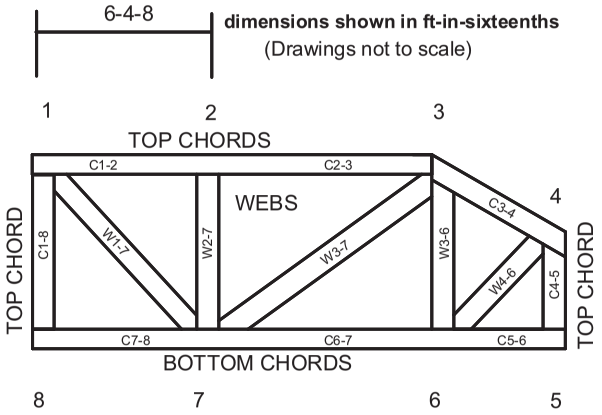


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-89: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Numbering System



JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

PRODUCT CODE APPROVALS

ICC-ES Reports:

ESR-1311, ESR-1352, ESR1988
ER-3907, ESR-2362, ESR-1397, ESR-3282

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TPI 1 section 6.3 These truss designs rely on lumber values established by others.

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MiTek Engineering Reference Sheet: MII-7473 rev. 5/19/2020

General Safety Notes

Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TPI 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TPI 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TPI 1 Quality Criteria.

21.The design does not take into account any dynamic or other loads other than those expressly stated.

Installation Manual

KEB Homes, dba Irontown Homes

Factory:
1947 North Chappel Drive
Spanish Fork, Utah
84660

Revised May, 2019

Table of Contents

Installation Procedures

Factory Built Division Inspection Reports

Electrical As-Built

Mechanical As-Built

Plumbing As-Built

Installation of Modular Units

The following is the Installation Manual for the installation of an Irontown Homes Modular Home. Since each home is custom designed and engineered please refer to the plans for all details. This manual will give a general description of all installation items.

1. **Installation of Modules to Foundation**
   a. After the modules are set on the foundation it will be connected to the foundation using the foundation strapping method indicated on the foundation hold down plan.
   b. Each strap should have been imbedded in the foundation at the time of the foundation pour and shall be nailed onto the modules as per the plans.

2. **Installation of Modules to Modules**
   a. The lower floor rim joists shall be connected using ½" x 6" lag bolts 32" on center.
   b. The upper floor shall be connected to the lower modules using the Simpson straps indicated in the plans at the applicable locations indicated by the structural engineer.
   c. Maintain gapping as indicated on the planset. Install shims as indicated in the structural engineering.

3. **Installation of Roof (if applicable)**
   a. Refer to roof framing plans for roof details.
   b. Refer to Truss Layout for layout of Pre-Manufactured Trusses.
   c. Hinge roof - connect crane hooks at 3 locations along the ridge of the house. Raise ridge to 3" above final elevation of ridgeline. Swing legs as directed by truss layouts. Legs must be plumb to eliminate any waves from forming along the ridgeline. Fasten legs as directed by truss drawings and structural engineering.

4. **Installation/Connection of Garage, Porches, etc.**
   a. Refer to plans for exact details, beam sizing, hangers, etc. Secure as noted in structural plans.

5. **Stitch Work**

   a.. Exterior Finish Work (Stitch):
      i. Install window trim
      ii. Install siding
      iii. Install aluminum fascia and soffit (provided by FACTORY)
      iv. Install rain gutters if desired (not provided by FACTORY)
      v. Marriage wall – attach strapping / bolts as directed by structural engineering. Leave gap of ½ inch between modules as directed by plans. Fill gap with foam insulation, gap must be filled full-width of the wall to achieve maximum R-value and prevent air infiltration.

Install foam at walls, roof, and floor marriage lines. Interior wall connections do not require foam.

b. Interior Finish Work (Stitch):
    i. Finish “Marriage wall” (where modules come together)
        1. Hang pre-hung door(s) (provided by FACTORY)
        2. Trim out openings with base and casing trim on marriage wall (provided by FACTORY)
        3. Install & finish any drywall on ceiling, wall, or openings for flush finish and texture.
        4. Paint to blend marriage wall into existing wall and ceiling (drywall provided by FACTORY)
        5. Repair minor cracks from shipment, if necessary

    ii. Electrical: (Materials provided by FACTORY)
        1. Refer to Electrical As-Builts as provided in this packet.
        2. Verify main power supply is installed, check with power company for exact local procedures.
        3. Tie main power supply line from power meter to interior panel box (if not connected in the factory.)
        4. Complete wire connections between modules (refer to “as-built” for connection locations.)
        5. Some fixtures or glass on fixtures will be shipped loose and may need to be put installed, when applicable.

    iii. Plumbing: (Materials provided by FACTORY)
        1. Connect water lines at all applicable connection points. Verify connections are tight and secure. Red/Hot, Blue/Cold.
        2. Connect main water inlet to module water main.
        3. Tie waste/drain lines under floor system to underground plumbing system attached to outside sewer or septic.
        4. Connect plumbing vent pipes in attic and extend through roof as directed by manufacturer. Verify proper vent cover is attached.
        5. Double check all fixtures and verify all plumbing components are properly installed.

    iv. HVAC System: (Provided by FACTORY)
        1. Make gas line connects between modules. Test all connections prior to turning gas on.
        2. Make main gas connection, check with local gas company for procedure.
        3. Make any ductwork connections between modules. Some projects require the whole main trunk to be installed.

v. Flooring:(Provided by FACTORY)
    1. Complete all flooring that may not have been installed in the factory. All materials shall be supplied unless otherwise agreed.
    2. Carpet and pad will be shipped loose for local installation as part of the stitch.

vi. Paint: (Provided by FACTORY)
    1. Touch up paint where drywall and/or finish carpentry is done on site.

***Note – All plans are custom and each plan will have individual differences for installation. Please refer to construction documents and any additional addenda to this document for job-specific installations.**

Attachment A – Factory inspection reports

Attachment B – As-Built plans – plans contain notes indicating crossover locations for Plumbing, Mechanical, Electrical and Fire Sprinkler, as required.

Calculations

Wind Speed: 115 mph
Exposure: C
A=3 ft
Wind Zones:
2e=-44 psf (Ultimate)
2r=--55.4 psf (Ultimate)
3e=-55.4 psf (Ultimate)
3r=-65.3 psf (Ultimate)
2n=-55.4 psf (Ultimate)
Exposure Factor=1.21 (for exposure C)
Span= 14.5 ft with 0.75 ft over hangs

Load Case:
Uplift=0.6*15 psf+0.6*1.21*(-65.3 psf)=-38.4 psf (service Level)(Conservative used highest wind load rather than wind load for each zone.)

Tributary Area=(14.5 ft/2+0.75 ft)*2 ft=13 square feet

Uplift=13 sf*-38.4 psf=-499.5 lbs

Fastenmaster good for 595 lbs into Hem-Fir>499.5 lbs see table below and ESR Report 1078.

Truss to Top Plate

FrameFAST is used to resist both uplift and lateral loads on trusses or rafters attached to the top plates of the wall. The fastener is installed at the prescribed angle through the top plates or header and into the center of the truss or rafter above. The FrameFAST tool, with the patented Truss to Top Plate Head, ensures proper location and installation angle every time.

To verify the adequacy of this connection for your specific application, confirm that the allowable loads in **Table A** meet or exceed the design specification or the capacity of the specified connector on your plans.

Table A Truss to Top Plate

Allowable Loads (in Pounds per Connection)

Species Group (Specific Gravity) [2,3]	Uplift	(F1) Parallel to Wall Without Blocking)	(F1) Parallel to Wall (With Blocking)	(F2) Perpendicular to Wall
So. Pine (0.55)	690	285	650	485
Douglas Fir - Larch (0.50)	655	300	600	455
Spruce - Pine - Fir/ Hem-Fir (0.42)	595	330	520	400

SI: 1 lb = 44.5 N

1. Wood Truss, rafter, or floor joist members shall be a minimum of 2" nominal thickness. Design of truss, rafter, or floor joist members is by others
2. Equivalent specific gravity of structural composite lumber (SCL) shall be equal to or greater than the specific gravities provided in this table. Refer to product information from SCL manufacturer.
3. For applications involving members with different specific gravities, use the allowable load corresponding to the lowest specific gravity.
4. No further duration of load increases permitted.
5. Use reduction factor of 0.80 when connecting each ply of multiply trusses to the top plate
6. See Figure 3 and Figure 4 in TER 1503-03 for blocking requirements between trusses, rafters, or floor joists.
7. For embedment depths into main member of less than 2-1/2" (full penetration) reduced allowable uplift shall be calculated using Section 5.2.2 and Figure 5 in TER 1503-03. For embedment depths greater than 2-1/2", no further increases allowed

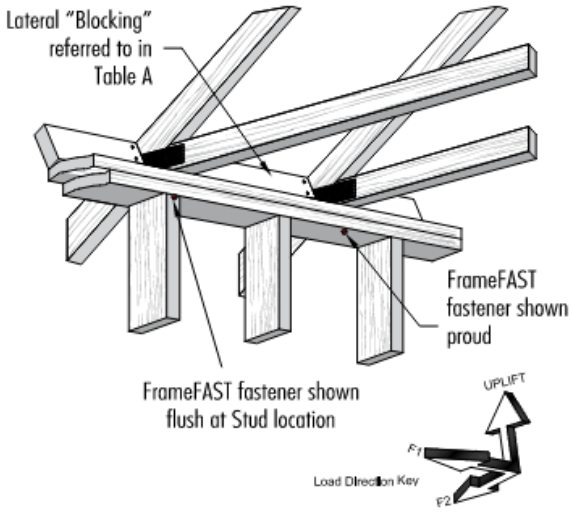
Installation Steps:

- Center the truss between alignment wings
- Press the head flush against the side of the plate
- Push firmly upward until cleats embed into the truss
- Drive the screw until it automatically disengages

Additional Tips:

- Install fasteners into girder trusses by rotating alignment wings aside
- For vaulted ceilings, bring back cleat upward to meet angle of truss
- Head can be left up to 1/4" proud for inspection without a reduction in connection strength

For complete installation instructions and additional technical information, consult the **Truss and Rafter to Top Plate Technical Evaluation Report, TER No. 1503-03**, available at FastenMaster.com.



Ground Snow Load