Builders® FirstSource

OUTPERFORM TODAY. TRANSFORM TOMORROW.

TRUSS PLACEMENT PLAN & CALCULATIONS

BFS Project No: M39030

PROJECT: Fidler Res / Deharo Construction
PLAN: Addition
LOCATION: 689 Lido Drive Livermore, Ca 94550
DEVELOPER: Owner Builder

Package Date: 08/15/2023 Revision Date:

REVIEWED
CITY OF LIVERMORE
BUILDING DIVISION

OCT 25 2023

BY: BLAKE WARMERDAM

OFFICE COPY

PROJECT #

[redacted]

Designer: Rene Ramirez
Email: rramirez@bldr.com

Pacific Region Truss Component Facilities

NorCal:	2800 Tully Rd. Hughson, CA 95326 (209) 883-8000	1140 Commerce Way Sanger, CA 93657 (559) 876-3630	
SoCal:	141 Vultee Street Shafter, CA 93263 (661) 535-6375	23665 Cajalco Rd. Perris, CA 92570 (951) 350-4480	45-491 Golf Center Pkwy Indio, CA 92201 (760) 347-3332
Nevada:	4915 Berg Street North Las Vegas, NV 89081 (702) 657-1889	6255 Range Road Las Vegas, NV 89115 (702) 636-5588	

PLANCHECK

PROJECT #

[redacted]

ESR#1988

SBCRI QUALITY ASSURANCE

2701 E. Grauwyler Rd. Building 1, DPT#1026 ▲ Irving, TX 75061 ▲ 224-236-3698

June 5, 2023

Ref: Builders FirstSource, Plant #1151

To Whom It May Concern:

Please be advised that Builders FirstSource, located in Shafter, CA, is an active participant in good standing with the SBCRI Quality Assurance Inspection Program for metal plate connected wood trusses. The SBCRI program is recognized by the ANSI-ASQ National Accreditation Board in accordance with ANSI/ANAB Report AI-2620 as a Type A (3rd Party) Inspection Body (https://www.sbcri.info/accreditation); it serves as a means for truss manufacturers to comply with International Residential Code (IRC) Sections R109.2 R502.11 and R802.10 and International Building Code (IBC) Sections 110.4, 1703, 1704.2.5 and 2303.4.

Based on random, unannounced inspections and/or audits of in-house QC records conducted by SBCRI, the metal plate connected wood truss design and manufacturing quality of Builders FirstSource, located in Shafter, CA, are in accordance with ANSI/TPI 1 referenced in ICC's IRC and IBC versions 2003, 2006, 2009, 2012, 2015, 2018 & 2021.

Builders FirstSource, located in Shafter, CA, is authorized to affix SBCRI's Quality Assurance Stamp provided that it maintains continued satisfactory conformance with ANSI/TPI 1 & IRC/IBC 2003, 2006, 2009, 2012, 2015, 2018 & 2021 codes. Its approved usage signifies that the truss manufacturer licensee is complying with the applicable provisions of the model building code. In the event of unsatisfactory performance (cycle of non-conforming reports), SBCRI TPI quality stamps may be removed from the premises of the SBCRI licensee and decertification proceeding initiated.

If SBCRI can be of further assistance in familiarizing you with the voluntary Quality Assurance Inspection Program, or the ongoing status of Builders FirstSource, located in Shafter, CA, or any other of the SBCRI Quality Assurance Licensees, please do not hesitate to contact us, or visit our website at https://www.sbcri.info/licensees to see a complete listing of truss manufacturers that are participating in our quality auditing program.

Sincerely,

John Arne

General Manager of Inspection Services

☒ Approved ☐ Approved as Corrected
☐ Rejected ☐ Revise and Resubmit
☐ Submit Specified Item

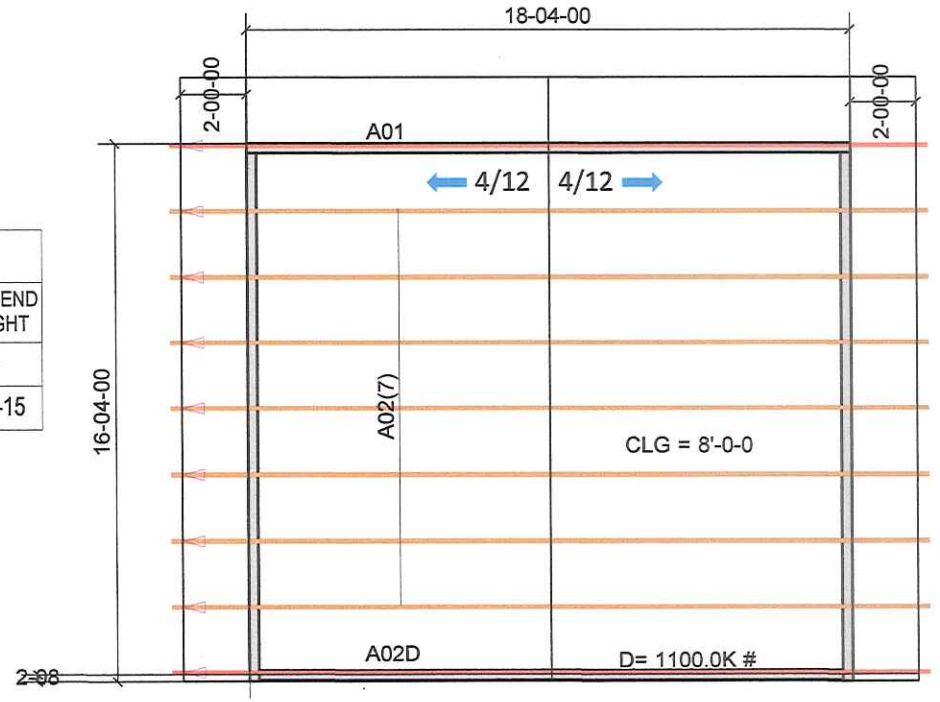
This review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with the requirements of the plans and specifications. Approval of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process or the means, methods, techniques, sequences and procedures of construction; coordination of the Work of all trades; and for performing all work in a safe and satisfactory manner.

VECTOR STRUCTURAL ENGINEERS

Date 8/17/23 By SGJ

BLOCK LIST

ID	DESCRIPTION	QTY	PITCH	LOW END HEIGHT
BK4	2X4X22 7/16" STD	8	-	-
SB1	2X 22 7/16" SHPD	16	4	0-6-15



EXISTING ROOF

THIS LAYOUT IS FOR PLACEMENT PURPOSES ONLY AND IS NOT INTENDED AS A STRUCTURAL ENGINEERING DOCUMENT.
ALL BEAM SIZES NOTED PER STRUCTURAL PLAN SET.

Builders FirstSource
OUTPERFORM TODAY. TRANSFORM TOMORROW

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY. These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer.

Framer is responsible for accurate spacing of trusses as designed and called out on placement plan. All trusses spaced at 24" oc unless noted otherwise.

SYMBOL LEGEND

A.A.	Attic Access
	Recessed Lights
RAG	Return Air Grill
X/12	Slope & Direction
Sxx	Hip Framing label
Vxx	Valley Framing label

DEVELOPER: O/B
FIDLER,CARA&MICHAEL
LOCATION: LIVERMORE, CA.
PLAN: ADU
SCALE: N T S

PROJECT No: M39030
DESIGNER: R C R

DATE	7/03/2023
REVISIONS	
	8/10/2023

MiTek®

MiTek, Inc.
400 Sunrise Ave., Suite 270
Roseville, CA 95661
916.755.3571

Re: M39030-689Lido
689 Lido Drive

The truss drawing(s) referenced below have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Builders FirstSource (Shafter, CA).

Pages or sheets covered by this seal: R77855743 thru R77855745

My license renewal date for the state of California is September 30, 2024.

[redacted]

August 15,2023

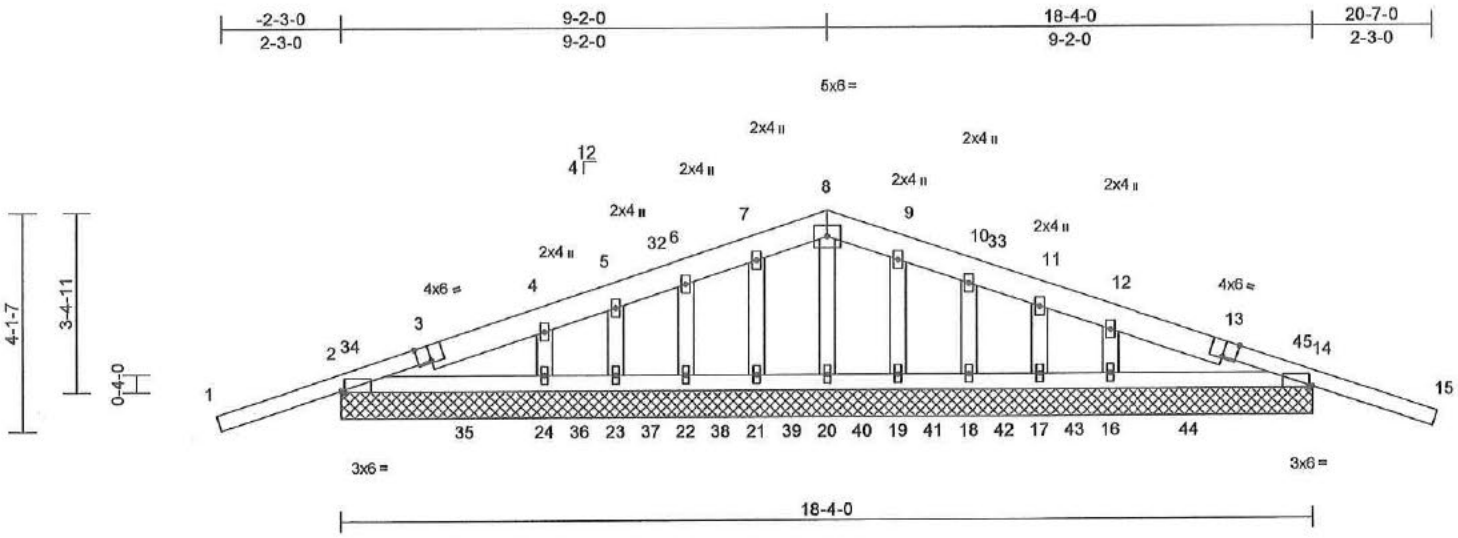
Zhao, Xiaoming

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	689 Lido Drive	R77855743
M39030-689Lido	A01	Common Supported Gable	1	1	Job Reference (optional)	

Builders FirstSource (Shafter, CA), Shafter, CA - 93263,

Run: 8.53 S Aug 2 2023 Print: 8.530 S Aug 2 2023 MiTek Industries, Inc. Tue Aug 15 12:39:46 ID:30qX5PrAUWgtO2qjpHBExzz?iZH-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKWrCDol7J4zJC?f



Scale = 1:42.3

Plate Offsets (X, Y): [2:0-0-11,Edge], [3:0-3-0,Edge], [13:0-3-0,Edge], [14:0-0-11,Edge]

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.25	TC	0.32	Vert(LL)	n/a	-	n/a	999	MT20	220/195
TCDL	14.0	Lumber DOL	1.25	BC	0.05	Vert(CT)	n/a	-	n/a	999		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.03	Horz(CT)	0.00	29	n/a	n/a		
BCDL	7.0	Code	IBC2021/TPI2014	Matrix-MSH							Weight: 92 lb	FT = 20%

LUMBER

TOP CHORD 2x4 DF No.2 G *Except* 3-8,13-8:2x6 DF No.2 G

BOT CHORD 2x4 DF No.2 G

OTHERS 2x4 DF No.2 G or 2x4 DF Std G or 2x4 DF Stud G

BRACING

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.

BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS (size) 2=18-4-0, 14=18-4-0, 16=18-4-0, 17=18-4-0, 18=18-4-0, 19=18-4-0, 20=18-4-0, 21=18-4-0, 22=18-4-0, 23=18-4-0, 24=18-4-0, 25=18-4-0, 29=18-4-0

Max Horiz 2=30 (LC 12), 25=30 (LC 12)

Max Uplift 2=-13 (LC 8), 14=-18 (LC 9), 17=-16 (LC 9), 23=-15 (LC 8), 25=-13 (LC 8), 29=-18 (LC 9)

Max Grav 2=353 (LC 1), 14=353 (LC 1), 16=210 (LC 3), 17=78 (LC 1), 18=114 (LC 26), 19=111 (LC 1), 20=94 (LC 1), 21=111 (LC 1), 22=114 (LC 25), 23=78 (LC 1), 24=210 (LC 3), 25=353 (LC 1), 29=353 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=0/49, 2-4=-50/127, 4-5=-45/31, 5-6=-39/46, 6-7=-48/57, 7-8=-55/68, 8-9=-55/69, 9-10=-48/59, 10-11=-40/47, 11-12=-38/33, 12-14=-50/127, 14-15=0/49

BOT CHORD 2-24=-136/64, 23-24=-8/29, 22-23=-8/29, 21-22=-8/29, 20-21=-8/29, 19-20=-8/29, 18-19=-8/29, 17-18=-8/29, 16-17=-8/29, 14-16=-136/65

WEBS 8-20=-75/0, 7-21=-93/15, 6-22=-93/21, 5-23=-64/24, 4-24=-174/17, 9-19=-93/15, 10-18=-93/21, 11-17=-64/24, 12-16=-174/17

NOTES

1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=92mph (3-second gust) Vasd=73mph; TCDL=8.4psf; BCDL=4.2psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner(3E) -2-3-9 to 0-9-15, Exterior(2N) 0-9-15 to 9-2-0, Corner(3R) 9-2-0 to 12-2-0, Exterior(2N) 12-2-0 to 20-7-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) 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.
4) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable requires continuous bottom chord bearing.
6) Gable studs spaced at 1-4-0 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 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
9) A plate rating reduction of 20% has been applied for the green lumber members.
10) All bearings are assumed to be DF No.2 crushing capacity of 625 psi.
11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 13 lb uplift at joint 2, 18 lb uplift at joint 14, 15 lb uplift at joint 23, 16 lb uplift at joint 17, 13 lb uplift at joint 2 and 18 lb uplift at joint 14.
12) Beveled plate or shim required to provide full bearing surface with truss chord at joint(s) 14.
13) This truss has been designed for a moving concentrated load of 6.0lb dead located at all mid panels and at all panel points along the Bottom Chord, nonconcurrent with any other live loads.

LOAD CASE(S) Standard

[redacted]

MiTek®
400 Sunrise Ave., Suite 270
Roseville, CA 95661
916.755.3571 / MiTek-US.com

Job	Truss	Truss Type	Qty	Ply	689 Lido Drive R77855744
M39030-689Lido	A02	Common	7	1	Job Reference (optional)

Builders FirstSource (Shafter, CA), Shafter, CA - 93263,

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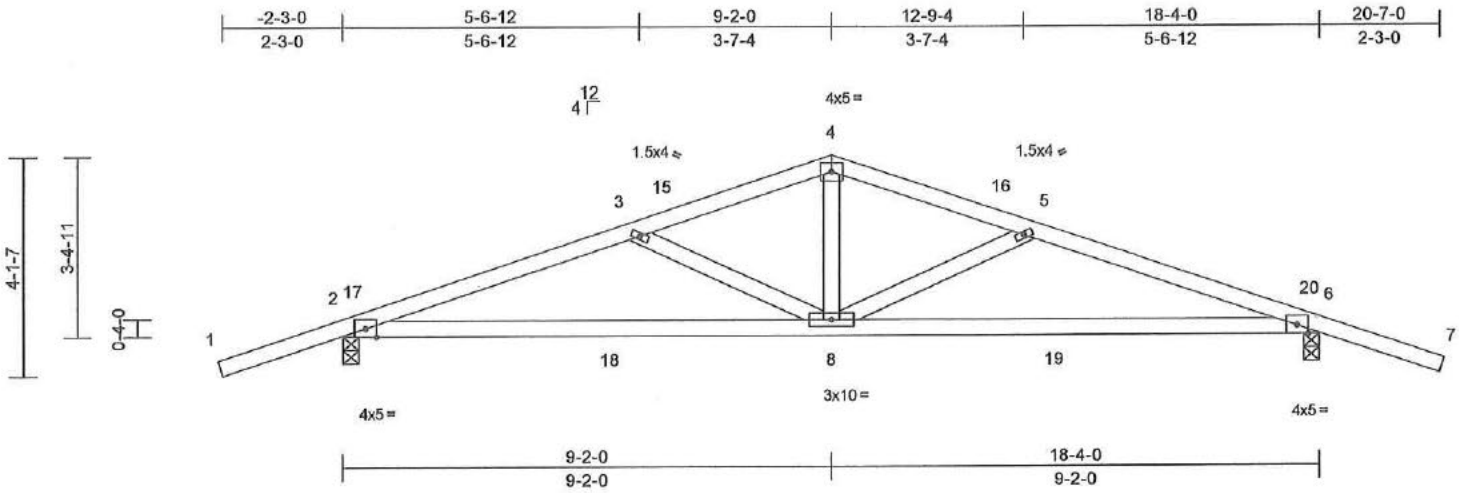

Scale = 1:42.1

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.25	TC	0.32	Vert(LL)	-0.10	8-14	>999	240	MT20	220/195
TCDL	14.0	Lumber DOL	1.25	BC	0.59	Vert(CT)	-0.32	8-11	>696	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.22	Horz(CT)	0.05	6	n/a	n/a		
BCDL	7.0	Code	IBC2021/TPI2014	Matrix-MSH							Weight: 73 lb	FT = 20%

LUMBER
TOP CHORD 2x4 DF No.2 G
BOT CHORD 2x4 DF No.2 G
WEBS 2x4 DF No.2 G or 2x4 DF Std G or 2x4 DF Stud G

BRACING
TOP CHORD Structural wood sheathing directly applied or 4-7-11 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS (size) 2=0-3-8, 6=0-3-8
Max Horiz 2=30 (LC 12)
Max Grav 2=908 (LC 1), 6=908 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/49, 2-3=-1623/0, 3-4=-1210/0, 4-5=-1210/0, 5-6=-1623/0, 6-7=0/49
BOT CHORD 2-8=0/1499, 6-8=0/1499
WEBS 4-8=0/536, 3-8=-450/14, 5-8=-450/14

NOTES
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=92mph (3-second gust) Vasd=73mph; TCDL=8.4psf; BCDL=4.2psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -2-3-9 to 0-9-15, Interior (1) 0-9-15 to 9-2-0, Exterior(2R) 9-2-0 to 12-2-0, Interior (1) 12-2-0 to 20-7-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
4) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
5) A plate rating reduction of 20% has been applied for the green lumber members.
6) All bearings are assumed to be DF No.2 crushing capacity of 625 psi.
7) This truss has been designed for a moving concentrated load of 6.0lb dead located at all mid panels and at all panel points along the Bottom Chord, nonconcurrent with any other live loads.

LOAD CASE(S) Standard

[redacted]

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Roseville, CA 95661
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Job	Truss	Truss Type	Qty	Ply	689 Lido Drive	R77855745
M39030-689Lido	A02D	Common	1	1	Job Reference (optional)	

Builders FirstSource (Shafter, CA), Shafter, CA - 93263,

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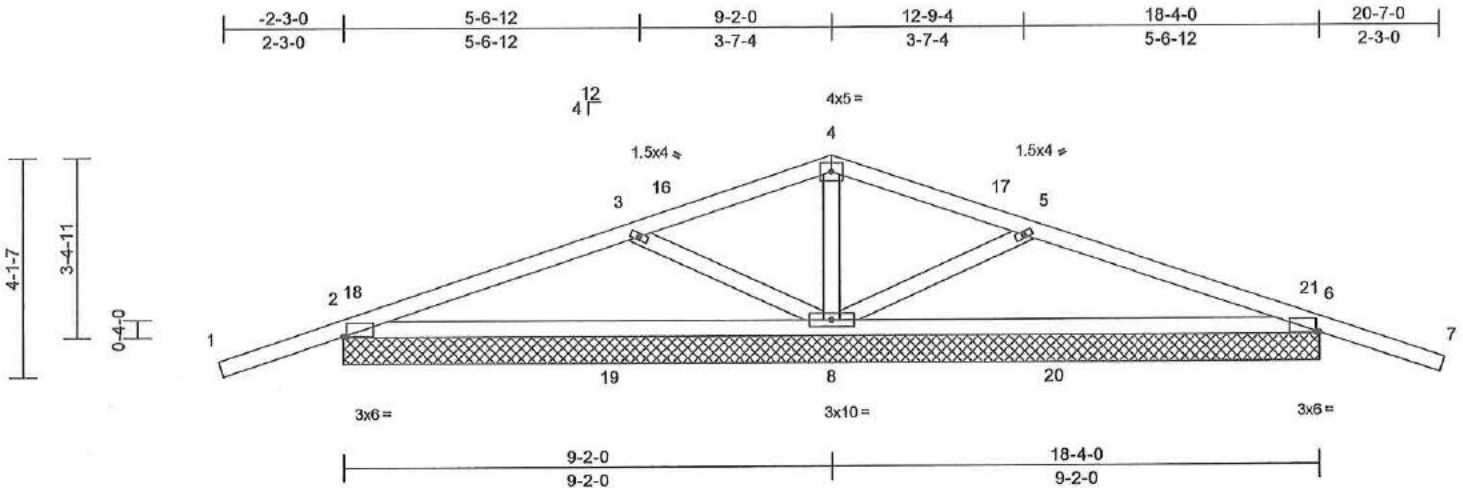

Scale = 1:42.1

Plate Offsets (X, Y): [2:0-0-11,Edge], [6:0-0-11,Edge]

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.25	TC	0.36	Vert(LL)	n/a	-	n/a	999	MT20	220/195
TCDL	14.0	Lumber DOL	1.25	BC	0.49	Vert(CT)	n/a	-	n/a	999		
BCLL	0.0*	Rep Stress Incr	NO	WB	0.16	Horz(CT)	0.01	13	n/a	n/a		
BCDL	7.0	Code	IBC2021/TPI2014	Matrix-MSH							Weight: 73 lb	FT = 20%

LUMBER
TOP CHORD 2x4 DF No.2 G
BOT CHORD 2x4 DF No.2 G
WEBS 2x4 DF No.2 G or 2x4 DF Std G or 2x4 DF Stud G

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

REACTIONS (size) 2=18-4-0, 6=18-4-0, 8=18-4-0, 9=18-4-0, 13=18-4-0
Max Horiz 2=-30 (LC 40), 9=-30 (LC 40)
Max Uplift 2=-184 (LC 29), 6=-188 (LC 32), 9=-184 (LC 29), 13=-188 (LC 32)
Max Grav 2=473 (LC 53), 6=473 (LC 54), 8=924 (LC 1), 9=473 (LC 53), 13=473 (LC 54)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/49, 2-3=-597/525, 3-4=-225/363, 4-5=-221/363, 5-6=-603/527, 6-7=0/49
BOT CHORD 2-8=-494/601, 6-8=-477/584
WEBS 4-8=-375/7, 3-8=-474/20, 5-8=-474/13

NOTES
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=92mph (3-second gust) Vasd=73mph; TCDL=8.4psf; BCDL=4.2psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -2-3-9 to 0-9-15, Interior (1) 0-9-15 to 9-2-0, Exterior(2R) 9-2-0 to 12-2-0, Interior (1) 12-2-0 to 20-7-9 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) Gable requires continuous bottom chord bearing.
4) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
5) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
6) A plate rating reduction of 20% has been applied for the green lumber members.
7) All bearings are assumed to be DF No.2 crushing capacity of 625 psi.
8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 184 lb uplift at joint 2, 188 lb uplift at joint 6, 184 lb uplift at joint 2 and 188 lb uplift at joint 6.
9) This truss has been designed for a moving concentrated load of 6.0lb dead located at all mid panels and at all panel points along the Bottom Chord, nonconcurrent with any other live loads.
10) This truss has been designed for a total drag load of 1100 lb. Lumber DOL=(1.33) Plate grip DOL=(1.33) Connect truss to resist drag loads along bottom chord from 0-0-0 to 18-4-0 for 60.0 plf.

LOAD CASE(S) Standard

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Roseville, CA 95661
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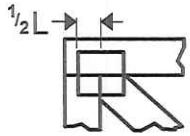
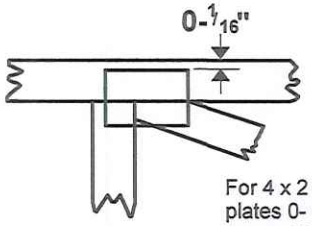
Symbols

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 software or upon request.

PLATE SIZE

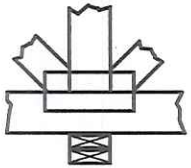
4 x 4

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

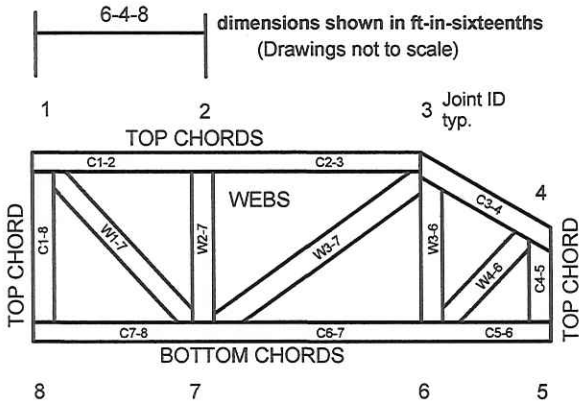


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-22: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing, Restraining & 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-1988, ESR-2362, ESR-2685, ESR-3282
ESR-4722, ESL-1388

Design General Notes

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.

MiTek®

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.

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