



MiTek, Inc.  
16023 Swingley Ridge Rd.  
Chesterfield, MO 63017  
314.434.1200

Re: 240613  
Lot 117 MN

The truss drawing(s) referenced below have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Wheeler - Waverly.

Pages or sheets covered by this seal: I64970373 thru I64970373

My license renewal date for the state of Missouri is December 31, 2025.

Missouri COA: Engineering 001193



April 18, 2024

Sevier, Scott, Engineer

**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.

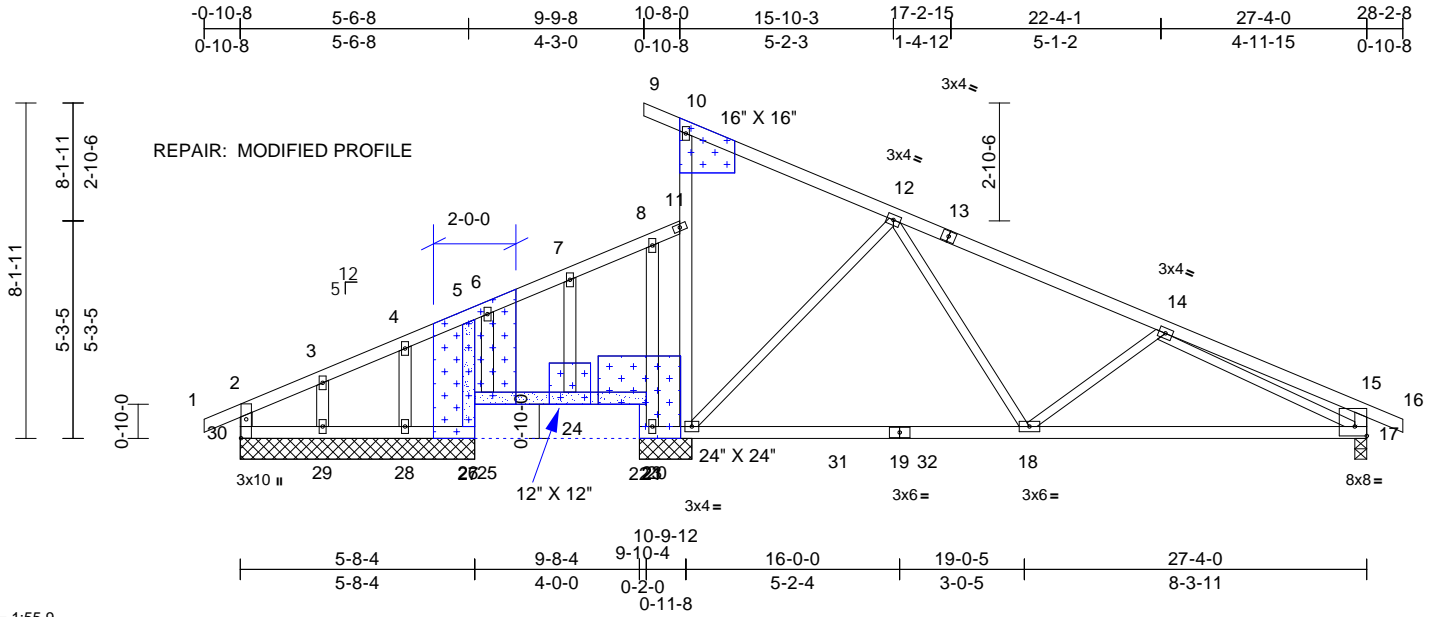
|        |       |                               |     |     |                          |           |
|--------|-------|-------------------------------|-----|-----|--------------------------|-----------|
| Job    | Truss | Truss Type                    | Qty | Ply | Lot 117 MN               | 164970373 |
| 240613 | C2    | Roof Special Structural Gable | 1   | 1   | Job Reference (optional) |           |

Wheeler Lumber, Waverly, KS - 66871,

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Scale = 1:55.9

INSTALL 2 X 4 SPF/DF/SP NO.2 CUT TO FIT TIGHT.

ATTACH 7/16" OSB GUSSET (7/16" RATED SHEATHING 24/16 EXP 1) TO ONE FACE OF TRUSS WITH (0.113" X 2") NAILS PER THE FOLLOWING NAIL SCHEDULE: 2 X 3'S - 2 ROWS, 2 X 4'S - 3 ROWS, 2 X 6'S AND LARGER - 4 ROWS: SPACED @ 2" O.C. INTO EACH COVERED TRUSS MEMBER. USE 2" MEMBER END DISTANCE.

Plate Offsets (X, Y): [17:Edge,0-2-12], [30:0-5-8,0-1-8]

| Loading     | (psf) | Spacing         | 2-0-0           | CSI      |      | DEFL     | in    | (loc) | l/defl | L/d | PLATES         | GRIP     |
|-------------|-------|-----------------|-----------------|----------|------|----------|-------|-------|--------|-----|----------------|----------|
| TCLL (roof) | 25.0  | Plate Grip DOL  | 1.15            | TC       | 0.44 | Vert(LL) | -0.11 | 18-20 | >999   | 360 | MT20           | 197/144  |
| TCDL        | 10.0  | Lumber DOL      | 1.15            | BC       | 0.64 | Vert(CT) | -0.19 | 17-18 | >999   | 240 |                |          |
| BCLL        | 0.0*  | Rep Stress Incr | YES             | WB       | 0.95 | Horz(CT) | 0.06  | 20    | n/a    | n/a |                |          |
| BCDL        | 10.0  | Code            | IRC2018/TPI2014 | Matrix-S |      | Wind(LL) | 0.02  | 18    | >999   | 240 | Weight: 113 lb | FT = 10% |

**LUMBER**  
TOP CHORD 2x4 SPF No.2  
BOT CHORD 2x4 SPF No.2  
WEBS 2x3 SPF No.2 \*Except\* 20-10-30,2,27-5:2x4 SPF No.2, 17-15:2x4 SPF 2100F 1.8E  
OTHERS 2x4 SPF No.2

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 5-7-5 oc purlins, except end verticals. Except: 6-0-0 oc bracing: 10-11  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing, Except: 10-0-0 oc bracing: 21-22,18-20,17-18.

**REACTIONS** (lb/size)  
17=798/0-3-8, 20=924/1-3-4, 21=16/1-3-4, 22=123/1-3-4, 27=325/5-8-4, 28=93/5-8-4, 29=184/5-8-4, 30=152/5-8-4  
Max Horiz 30=117 (LC 5)  
Max Uplift 17=142 (LC 9), 20=67 (LC 9), 21=443 (LC 14), 27=79 (LC 8), 28=7 (LC 5), 29=113 (LC 8), 30=26 (LC 5)  
Max Grav 17=808 (LC 24), 20=1184 (LC 24), 21=42 (LC 21), 22=274 (LC 14), 27=336 (LC 23), 28=94 (LC 2), 29=197 (LC 2), 30=153 (LC 21)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/27, 2-3=139/73, 3-4=88/74, 4-5=65/107, 5-6=80/36, 6-7=50/64, 7-8=22/117, 8-11=33/152, 11-20=191/25, 10-11=213/65, 9-10=27/0, 10-12=78/86, 12-13=786/164, 13-14=918/148, 14-15=377/63, 15-16=0/27, 2-30=136/35, 15-17=331/99

**BOT CHORD** 29-30=-16/132, 28-29=-16/132, 27-28=-16/132, 21-22=0/0, 20-21=-19/154, 20-31=0/491, 19-31=0/491, 19-32=0/491, 18-32=0/491, 17-18=-163/989, 25-26=-23/187, 24-25=-23/187, 23-24=-23/187  
**WEBS** 14-17=-822/177, 12-20=-719/225, 12-18=-25/561, 14-18=-335/212, 3-29=-143/110, 4-28=53/37, 6-25=0/70, 7-24=23/46, 21-23=311/142, 8-23=-253/142, 26-27=-316/84, 5-26=-302/78

#### NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) exterior zone; cantilever left and right exposed; end vertical left and right exposed; Lumber DOL=1.60 plate grip DOL=1.60
- 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.
- All plates are 2x4 MT20 unless otherwise indicated.
- Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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, with BCDL = 10.0psf.
- All bearings are assumed to be SPF No.2 crushing capacity of 425 psi.

- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 67 lb uplift at joint 20, 26 lb uplift at joint 30, 79 lb uplift at joint 27, 142 lb uplift at joint 17, 113 lb uplift at joint 29, 7 lb uplift at joint 28 and 443 lb uplift at joint 21.
- N/A

- 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.
- 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



April 18, 2024

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 1/2/2023 BEFORE USE.**

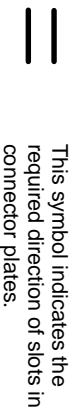
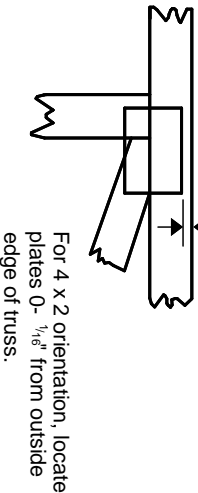
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of the design parameters and properly incorporate this design into the overall 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, and DSB-22** available from Truss Plate Institute (www.tpinst.org) and **BCSI Building Component Safety Information** available from the Structural Building Component Association (www.sbcsccomponents.com)

**MiTek®**

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## Symbols

### PLATE LOCATION AND ORIENTATION



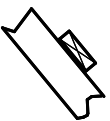
\* Plate location details available in MITek software or upon request.

### PLATE SIZE

**4 X 4**

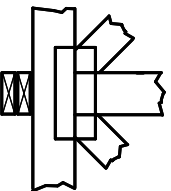
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

### 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.

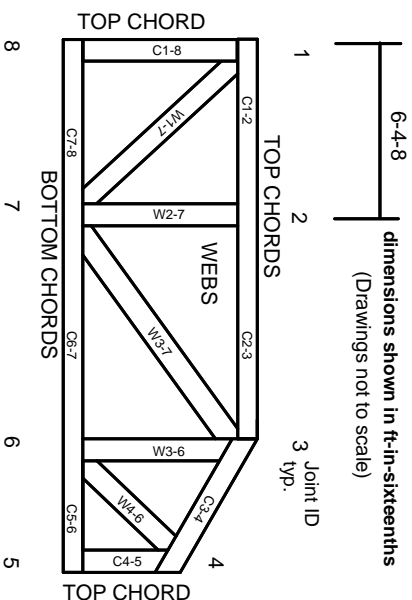
### BEARING



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/TP1: 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/TP1 1 section 6.3. These truss designs rely on lumber values established by others.

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# MITek®

MITek Engineering Reference Sheet: MIL-7473 rev. 1/2/2023

## 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/TP1 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TP1 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/TP1 1 Quality Criteria.
21. The design does not take into account any dynamic or other loads other than those expressly stated.