



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

Re: 24100211-A
Thyret-Roof

The truss drawing(s) referenced below have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Carter Components (Newton Falls, OH).

Pages or sheets covered by this seal: I68859347 thru I68859348

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



October 15, 2024

Tony Miller

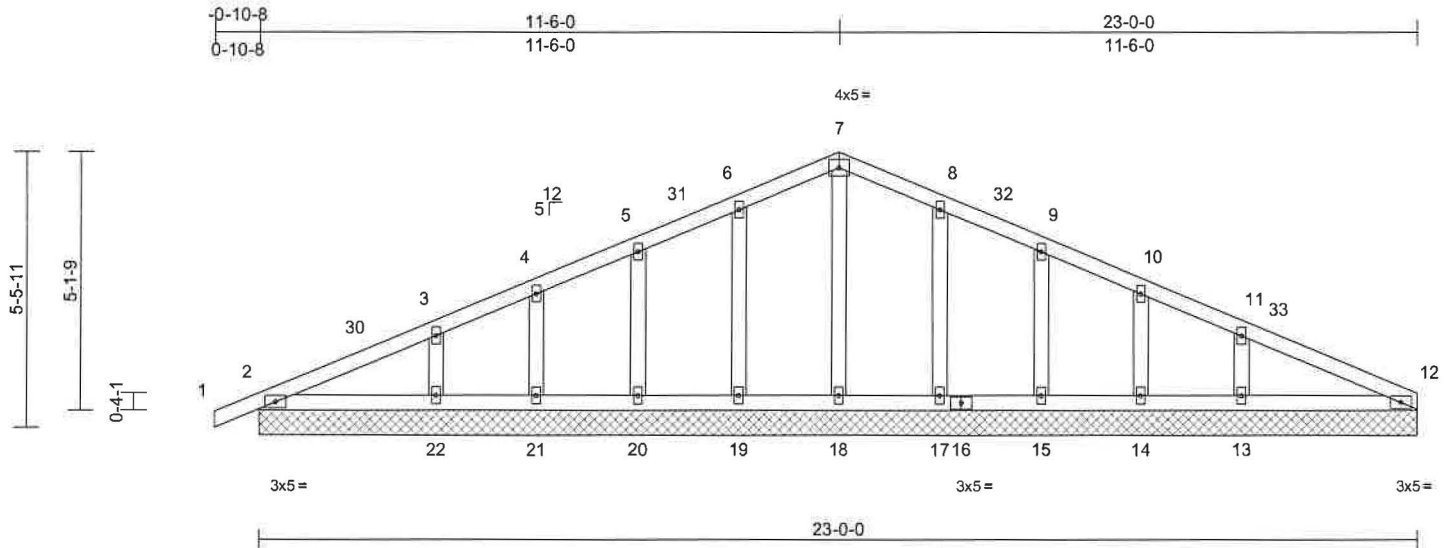
IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which 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 24100211-A	Truss A1GE	Truss Type COMMON	Qty 1	Ply 1	Thyret-Roof Job Reference (optional)	168859347
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Carter Components (Newton Falls), Newton Falls, OH - 44444,

Run: 8.73 S Sep 25 2024 Print: 8.730 S Sep 25 2024 MiTek Industries, Inc. Fri Oct 11 12:38:41
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Page: 1



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Loading	(psf)	Spacing	2-0-0	CSI	DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP	
TCLL (roof)	30.0	Plate Grip DOL	1.15	TC	0.13	Vert(LL)	n/a	-	n/a	999	MT20	197/144
Snow (Ps/Pg)	23.1/30.0	Lumber DOL	1.15	BC	0.13	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.06	Horz(CT)	0.00	12	n/a	n/a		
BCLL	0.0	Code	IRC2018/TPI2014	Matrix-MS								
BCDL	10.0											
											Weight: 84 lb	FT = 20%

LUMBER
 TOP CHORD 2x4 SPF No.2
 BOT CHORD 2x4 SPF No.2
 OTHERS 2x4 SPF No.2

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=23-0-0, 12=23-0-0, 13=23-0-0,
 14=23-0-0, 15=23-0-0, 17=23-0-0,
 18=23-0-0, 19=23-0-0, 20=23-0-0,
 21=23-0-0, 22=23-0-0, 23=23-0-0,
 27=23-0-0
 Max Horiz 2=68 (LC 18), 23=68 (LC 18)
 Max Uplift 2=-4 (LC 10), 13=-35 (LC 15),
 14=-13 (LC 15), 15=-21 (LC 15),
 17=-20 (LC 15), 19=-21 (LC 14),
 20=-20 (LC 14), 21=-14 (LC 14),
 22=-32 (LC 14), 23=-4 (LC 10)
 Max Grav 2=232 (LC 2), 12=150 (LC 2),
 13=356 (LC 37), 14=153 (LC 22),
 15=253 (LC 22), 17=249 (LC 22),
 18=173 (LC 2), 19=250 (LC 21),
 20=252 (LC 21), 21=159 (LC 21),
 22=338 (LC 36), 23=232 (LC 2),
 27=150 (LC 2)

FORCES (lb) - Maximum Compression/Maximum Tension
 TOP CHORD 1-2=0/38, 2-3=-73/52, 3-4=-65/46,
 4-5=-50/61, 5-6=-60/76, 6-7=-69/92,
 7-8=-69/92, 8-9=-60/64, 9-10=-50/40,
 10-11=-59/20, 11-12=-75/43
 BOT CHORD 2-22=-25/51, 21-22=-19/51, 20-21=-19/51,
 19-20=-19/51, 18-19=-19/51, 17-18=-19/51,
 15-17=-19/51, 14-15=-19/51, 13-14=-19/51,
 12-13=-19/64

WEBS 7-18=-132/0, 6-19=-211/50, 5-20=-206/44,
 4-21=-141/38, 3-22=-241/58, 8-17=-211/49,
 9-15=-207/45, 10-14=-138/38, 11-13=-249/59

- NOTES**
- 1) Unbalanced roof live loads have been considered for this design.
 - 2) Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TCCL=6.0psf; BCCL=6.0psf; h=25ft; Ke=1.00; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-10-8 to 2-1-8, Interior (1) 2-1-8 to 8-6-0, Exterior(2R) 8-6-0 to 14-6-0, Interior (1) 14-6-0 to 20-0-0, Exterior(2E) 20-0-0 to 23-0-0 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) TCCL: ASCE 7-16; Pr=30.0 psf (roof LL); Lum DOL=1.15 Plate DOL=1.15; Pg=30.0 psf; Ps=23.1 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
 - 5) Roof design snow load has been reduced to account for slope.
 - 6) Unbalanced snow loads have been considered for this design.
 - 7) This truss has been designed for greater of min roof live load of 12.0 psf or 2.00 times flat roof load of 23.1 psf on overhangs non-concurrent with other live loads.
 - 8) All plates are 2x4 MT20 unless otherwise indicated.
 - 9) Gable requires continuous bottom chord bearing.
 - 10) Gable studs spaced at 2-0-0 oc.
 - 11) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 - 12) All bearings are assumed to be SPF No.2.

- 13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 4 lb uplift at joint 2, 21 lb uplift at joint 19, 20 lb uplift at joint 20, 14 lb uplift at joint 21, 32 lb uplift at joint 22, 20 lb uplift at joint 17, 21 lb uplift at joint 15, 13 lb uplift at joint 14, 35 lb uplift at joint 13 and 4 lb uplift at joint 2.
- 14) 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



October 15, 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 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.tpinet.org) and BCSI Building Component Safety Information available from the Structural Building Component Association (www.sbcsccomponents.com)

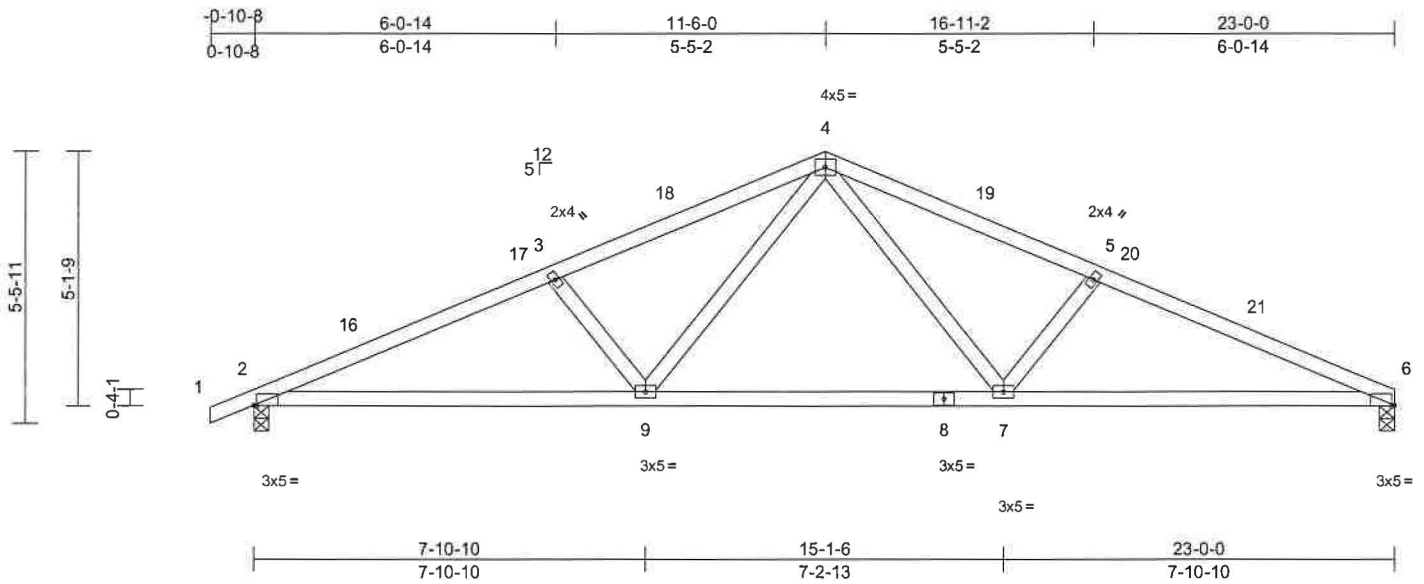
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 Chesterfield, MO 63017
 314.434.1200 / MiTek-US.com

Job 24100211-A	Truss A1	Truss Type COMMON	Qty 6	Ply 1	Thyret-Roof Job Reference (optional)	168859348
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Carter Components (Newton Falls), Newton Falls, OH - 44444,

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Page: 1



Scale = 1:44.6

Plate Offsets (X, Y): [2:0-0-10,Edge], [6:0-0-10,Edge]

Loading	(psf)	Spacing	2-0-0	CSI	DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP	
TCLL (roof)	30.0	Plate Grip DOL	1.15	TC	0.54	Vert(LL)	-0.13	7-15	>999	360	MT20	197/144
Snow (Ps/Pg)	23.1/30.0	Lumber DOL	1.15	BC	0.77	Vert(CT)	-0.26	7-15	>999	240		
TCDL	10.0	Rep Stress Incr	YES	WB	0.18	Horz(CT)	0.06	6	n/a	n/a		
BCLL	0.0	Code	IRC2018/TPI2014	Matrix-MS								
BCDL	10.0											
											Weight: 76 lb	FT = 20%

LUMBER

TOP CHORD 2x4 SPF No.2
BOT CHORD 2x4 SPF No.2
WEBS 2x4 SPF No.2

BRACING

TOP CHORD Structural wood sheathing directly applied or 3-3-5 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=68 (LC 14)
Max Uplift 2=-23 (LC 14), 6=-12 (LC 15)
Max Grav 2=1221 (LC 2), 6=1149 (LC 2)

FORCES

(lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/38, 2-3=-2312/123, 3-4=-2043/123, 4-5=-2049/127, 5-6=-2318/127
BOT CHORD 2-9=-64/2090, 7-9=-7/1383, 6-7=-69/2098
WEBS 3-9=-526/122, 4-9=-14/726, 4-7=-16/733, 5-7=-530/123

NOTES

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Ke=1.00; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-10-8 to 2-1-8, Interior (1) 2-1-8 to 8-6-0, Exterior(2R) 8-6-0 to 14-6-0, Interior (1) 14-6-0 to 20-0-0, Exterior(2E) 20-0-0 to 23-0-0 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) TCLL: ASCE 7-16; Pr=30.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=30.0 psf; Ps=23.1 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10

- 4) Roof design snow load has been reduced to account for slope.
- 5) Unbalanced snow loads have been considered for this design.
- 6) This truss has been designed for greater of min roof live load of 12.0 psf or 2.00 times flat roof load of 23.1 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) All bearings are assumed to be SPF No.2.
- 9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 23 lb uplift at joint 2 and 12 lb uplift at joint 6.
- 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.

LOAD CASE(S) Standard



October 15, 2024

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

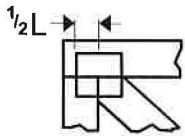
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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)

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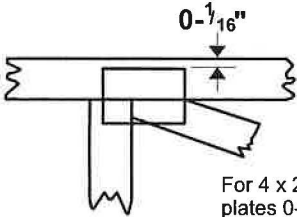
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Symbols

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

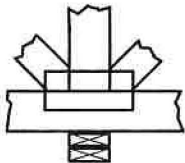
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

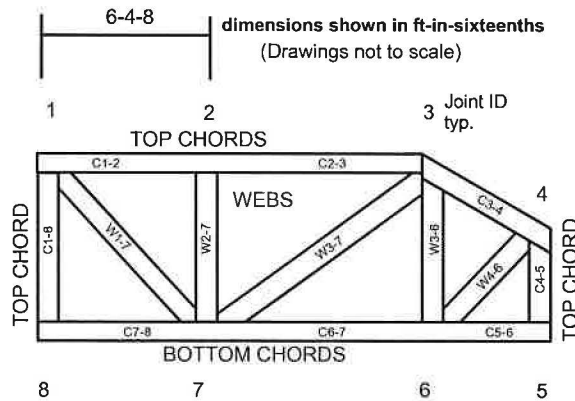


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

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.

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MiTek Engineering Reference Sheet: MII-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/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.