



MiTek USA, Inc.  
16023 Swingley Ridge Rd  
Chesterfield, MO 63017  
314-434-1200

Re: 220006  
Lot 26 OS

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: I55160100 thru I55160103

My license renewal date for the state of Missouri is December 31, 2022.

Missouri COA: Engineering 001193



November 9, 2022

Fox, Steve, 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.

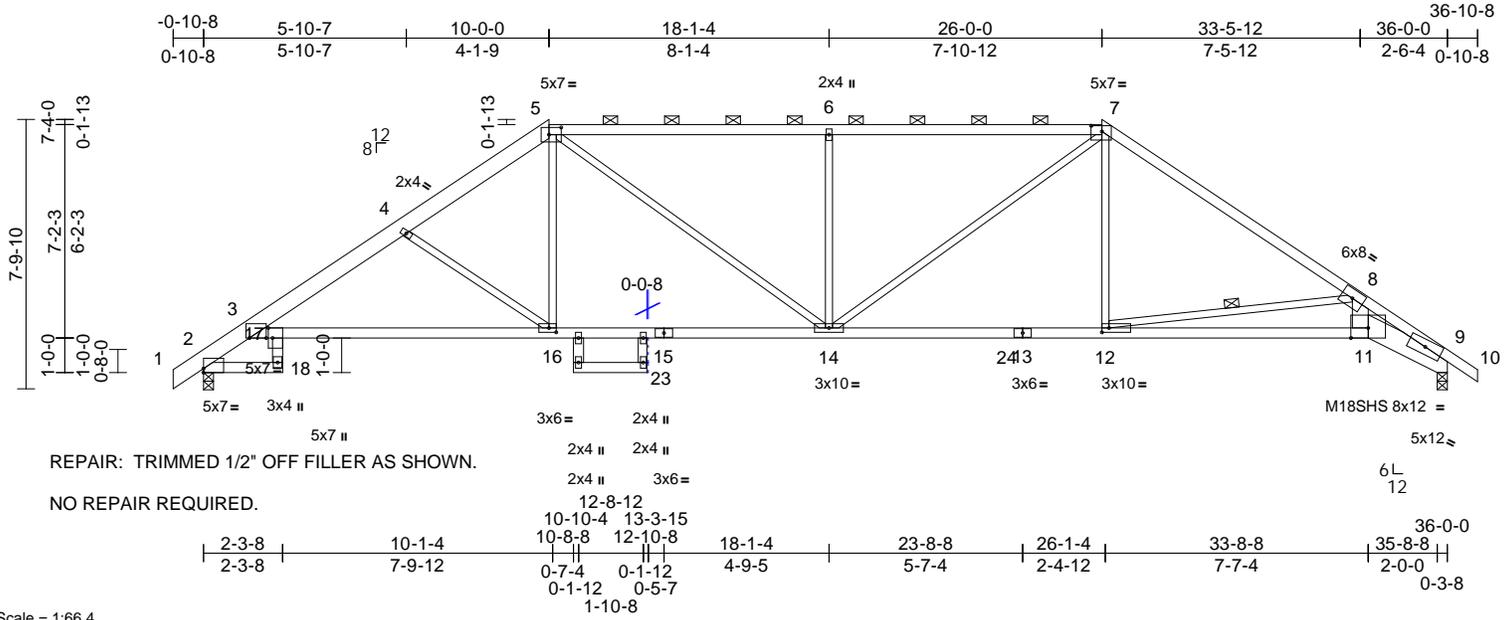


Job 220006	Truss A4	Truss Type Hip	Qty 1	Ply 1	Lot 26 OS Job Reference (optional)	Units: 1.0 Eng: TH	I55160101
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Wheeler Lumber, Waverly, KS - 66871,

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Page: 1



Scale = 1:66.4  
Plate Offsets (X, Y): [2:Edge,0-1-6], [3:0-5-14,Edge], [5:0-4-4,0-2-8], [7:0-3-12,0-2-0], [12:0-2-8,0-1-8], [16:0-2-8,0-1-8], [17:0-3-8,Edge]

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	0.82	Vert(LL)	-0.35	16-17	>999	360	MT20	197/144
TCDL	10.0	Lumber DOL	1.15	BC	0.75	Vert(CT)	-0.63	16-17	>676	240	M18SHS	197/144
BCLL	0.0*	Rep Stress Incr	YES	WB	0.98	Horz(CT)	0.44	9	n/a	n/a		
BCDL	10.0	Code	IRC2018/TPI2014	Matrix-S		Wind(LL)	0.19	16-17	>999	240	Weight: 158 lb	FT = 10%

**LUMBER**  
TOP CHORD 2x4 SPF 2100F 1.8E \*Except\* 1-5:2x6 SP 2400F 2.0E  
BOT CHORD 2x4 SPF No.2 \*Except\* 3-15,13-11:2x4 SPF 2100F 1.8E, 11-9:2x8 SP DSS  
WEBS 2x3 SPF No.2 \*Except\* 11-8:2x6 SPF No.2, 19-21,20-22:2x4 SPF No.2

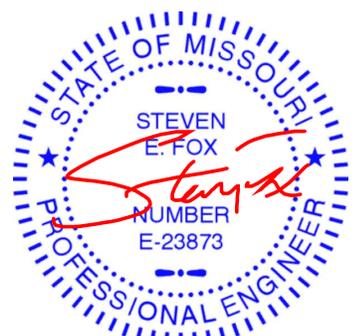
**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins, except 2-0-0 oc purlins (4-0-12 max.): 5-7.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.  
WEBS 1 Row at midpt 8-12

**REACTIONS** (size) 2=0-3-8, 9=0-3-8  
Max Horiz 2=190 (LC 7)  
Max Uplift 2=147 (LC 8), 9=147 (LC 9)  
Max Grav 2=1764 (LC 2), 9=1754 (LC 2)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/22, 2-3=-1329/143, 3-4=-3044/255, 4-5=-2664/243, 5-6=-2668/267, 6-7=-2670/269, 7-8=-2662/190, 8-9=-5781/435, 9-10=0/24  
BOT CHORD 2-18=-87/278, 17-18=-8/119, 3-17=-249/2420, 16-17=-336/2676, 14-16=-243/2147, 12-14=-89/2120, 11-12=-326/3981, 9-11=-351/4933  
WEBS 5-16=-40/828, 5-14=-234/753, 6-14=-660/275, 7-14=-247/800, 7-12=0/591, 8-12=-1957/436, 8-11=-44/2203, 4-16=-755/237

- 2) Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TC DL=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
- 3) Provide adequate drainage to prevent water ponding.
- 4) All plates are MT20 plates unless otherwise indicated.
- 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 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
- 7) Bearing at joint(s) 9 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 147 lb uplift at joint 2 and 147 lb uplift at joint 9.
- 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) 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



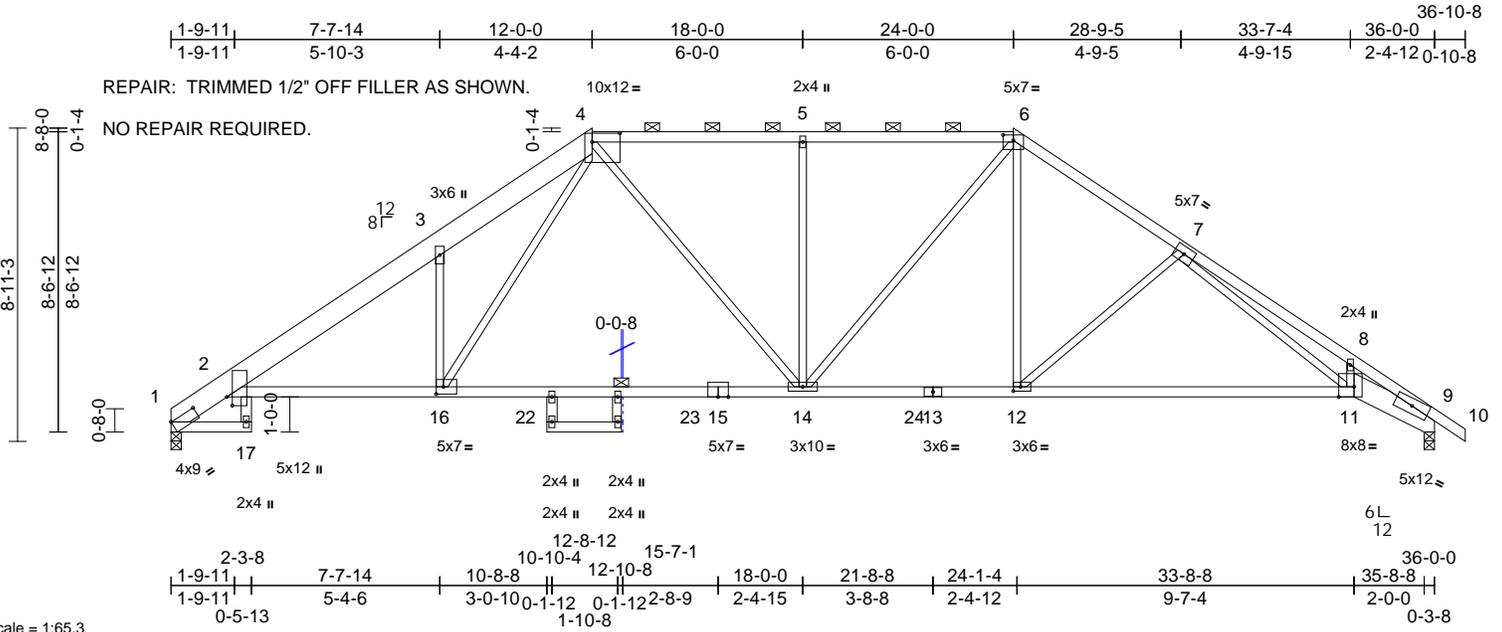
November 9, 2022

Job 220006	Truss A5	Truss Type Hip	Qty 1	Ply 1	Lot 26 OS Job Reference (optional)	Units: 1.0 Eng: TH	I55160102
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Wheeler Lumber, Waverly, KS - 66871,

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Page: 1



Scale = 1:65.3

Plate Offsets (X, Y): [1:0-8-14,0-0-2], [2:0-2-15,0-1-14], [4:0-9-8,0-3-0], [6:0-3-8,0-1-14], [11:0-5-4,Edge], [12:0-2-8,0-1-8], [16:0-2-8,0-2-8]

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	0.65	Vert(LL)	-0.43	14-16	>990	360	MT20	197/144
TCDL	10.0	Lumber DOL	1.15	BC	0.67	Vert(CT)	-0.77	11-12	>556	240		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.76	Horz(CT)	0.40	9	n/a	n/a		
BCDL	10.0	Code	IRC2018/TPI2014	Matrix-S		Wind(LL)	0.15	11-12	>999	240	Weight: 176 lb	FT = 10%

**LUMBER**

TOP CHORD 2x8 SP DSS \*Except\* 4-6:2x4 SPF No.2, 6-10:2x4 SPF 2100F 1.8E  
 BOT CHORD 2x4 SPF No.2 \*Except\* 2-15,15-13:2x4 SPF 2400F 2.0E, 11-9:2x8 SP DSS, 13-11:2x4 SPF 2100F 1.8E  
 WEBS 2x3 SPF No.2 \*Except\* 17-2,18-20,19-21:2x4 SPF No.2

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 2-7-15 oc purlins, except 2-0-0 oc purlins (3-6-3 max.): 4-6.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 1-17. 10-0-0 oc bracing: 14-16

**REACTIONS**

(size) 1=0-3-8, 9=0-3-8  
 Max Horiz 1=-220 (LC 6)  
 Max Uplift 1=-134 (LC 8), 9=-166 (LC 9)  
 Max Grav 1=1737 (LC 2), 9=1764 (LC 2)

**FORCES**

(lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 1-2=-1104/159, 2-3=-3020/212, 3-4=-3280/441, 4-5=-2193/184, 5-6=-2194/185, 6-7=-2401/197, 7-8=-4898/412, 8-9=-5496/285, 9-10=0/24  
 BOT CHORD 1-17=-34/0, 2-16=-222/2625, 14-16=-179/1875, 12-14=-30/1917, 11-12=-48/2367, 9-11=-177/4597  
 WEBS 2-17=0/61, 4-16=-291/1566, 4-14=-148/598, 5-14=-489/201, 6-14=-184/536, 6-12=-64/739, 7-12=-659/244, 7-11=-181/2229, 8-11=0/722, 3-16=-966/363

**NOTES**

1) Unbalanced roof live loads have been considered for this design.

- 2) Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TC DL=6.0psf; BC DL=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
- 3) Provide adequate drainage to prevent water ponding.
- 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, with BC DL = 10.0psf.
- 6) Bearing at joint(s) 9 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
- 7) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 134 lb uplift at joint 1 and 166 lb uplift at joint 9.
- 8) 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.
- 9) 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



November 9, 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 ANSITPI Quality Criteria, DSB-89 and BCSI Building Component Safety Information available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



Job 220006	Truss A6	Truss Type Hip	Qty 1	Ply 1	Lot 26 OS Job Reference (optional)	Units: 1.0 Eng: TH	I55160103
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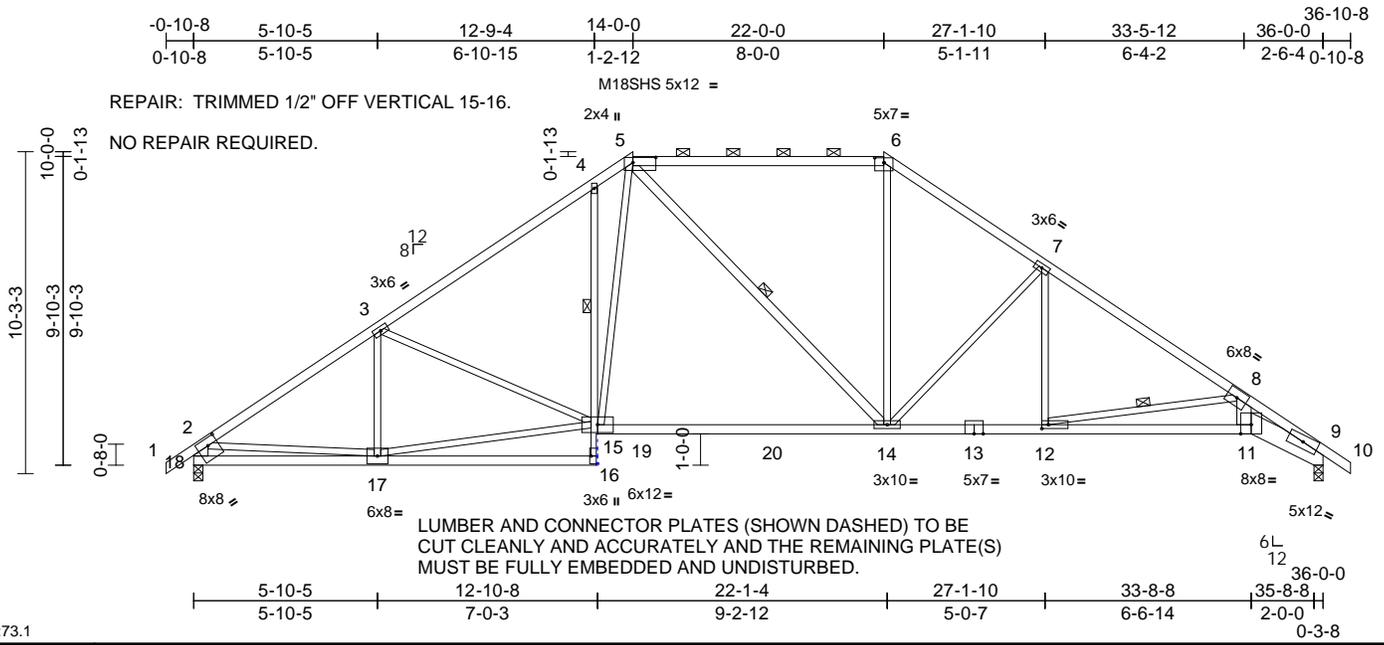


Plate Offsets (X, Y): [5:0-8-12,0-2-0], [6:0-3-8,0-1-14], [12:0-2-8,0-1-8], [16:Edge,0-2-8], [18:0-3-12,0-2-12]

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	0.79	Vert(LL)	-0.40	14-15	>999	360	M18SHS	197/144
TCDL	10.0	Lumber DOL	1.15	BC	0.66	Vert(CT)	-0.70	14-15	>614	240	MT20	197/144
BCLL	0.0*	Rep Stress Incr	YES	WB	0.97	Horz(CT)	0.25	9	n/a	n/a		
BCDL	10.0	Code	IRC2018/TPI2014	Matrix-S		Wind(LL)	0.13	11-12	>999	240	Weight: 167 lb	FT = 10%

**LUMBER**  
TOP CHORD 2x4 SPF No.2 \*Except\* 5-6:2x4 SPF 2100F 1.8E  
BOT CHORD 2x4 SPF 2100F 1.8E \*Except\* 18-16:2x4 SPF No.2, 16-4:2x3 SPF No.2, 11-9:2x8 SP DSS  
WEBS 2x3 SPF No.2 \*Except\* 14-5:2x4 SPF No.2, 11-8,18-2:2x6 SPF No.2

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 2-2-0 oc purlins, except end verticals, and 2-0-0 oc purlins (4-0-12 max.): 5-6.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 16-17.  
1 Row at midpt 4-15  
WEBS 1 Row at midpt 5-14, 8-12

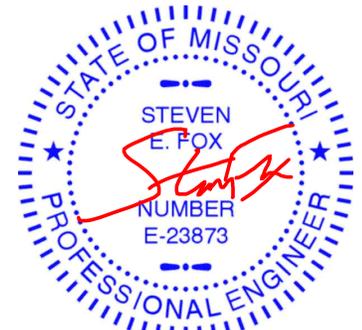
**REACTIONS** (size) 9=0-3-8, 18=0-3-8  
Max Horiz 18=267 (LC 6)  
Max Uplift 9=-183 (LC 9), 18=-184 (LC 8)  
Max Grav 9=1739 (LC 2), 18=1753 (LC 2)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/43, 2-3=-2439/229, 3-4=-2275/244, 4-5=-2089/377, 5-6=-1716/237, 6-7=-2149/231, 7-8=-2675/235, 8-9=-5635/463, 9-10=0/24, 2-18=-1660/211  
BOT CHORD 17-18=-259/680, 16-17=-60/43, 15-16=0/127, 4-15=-222/242, 14-15=-96/1704, 12-14=-13/2172, 11-12=-315/3860, 9-11=-352/4794  
WEBS 3-17=-261/120, 15-17=-226/2110, 3-15=-267/188, 5-15=-269/949, 5-14=-177/191, 6-14=-34/802, 7-14=-757/242, 7-12=0/427, 8-12=-1787/314, 8-11=-63/2162, 2-17=0/1488

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TC DL=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
- Provide adequate drainage to prevent water ponding.
- All plates are MT20 plates unless otherwise indicated.
- 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.
- Bearing at joint(s) 9 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 184 lb uplift at joint 18 and 183 lb uplift at joint 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.
- 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



November 9, 2022

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.**

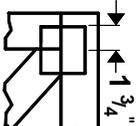
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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 ANSITPI Quality Criteria, DSB-89 and BCSI Building Component Safety Information available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



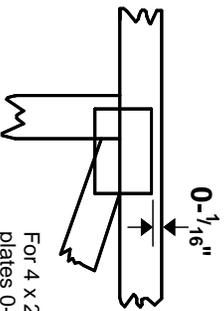
16023 Swingley Ridge Rd  
Chesterfield, MO 63017

# 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

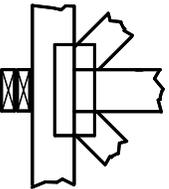
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## 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



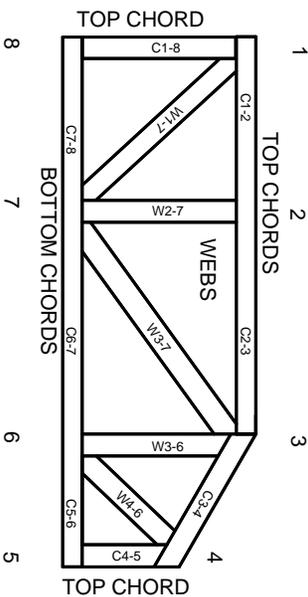
Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

## Industry Standards:

ANSI/TPI 1: National Design Specification for Metal Plate Connected Wood Truss Construction.  
DSB-89: Design Standard for Bracing, Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

# Numbering System

6-4-8 dimensions shown in ft-in-sixteenths (Drawings not to scale)



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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# 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 T or 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.



MITek Engineering Reference Sheet: Mill-7473 rev. 5/19/2020