



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

Re: 201470  
Solaia

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

Pages or sheets covered by this seal: I44106531 thru I44106531

My license renewal date for the state of Missouri is December 31, 2021.

Missouri COA: Engineering 001193



December 22, 2020

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	Solaia	1 UNIT JV 1 OF 1	I44106531
201470	GIRDER1	Half Hip Girder	1	2			

Heartland Truss, Inc., Plattsburg, MO - 64477,

8.330 s Oct 7 2020 MiTek Industries, Inc. Tue Dec 22 10:02:57 2020 Page 1

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4-0-11	7-9-13	11-8-4	16-4-10	21-1-0	25-9-6	30-7-8
4-0-11	3-9-3	3-10-7	4-8-6	4-8-6	4-8-6	4-10-2

REPAIR:  
BREAK IN BOTTOM CHORD JUST TO THE RIGHT OF JOINT K  
REPLACE VERTICAL MEMBER I-J OF ONE PLY

Scale = 1:67.4

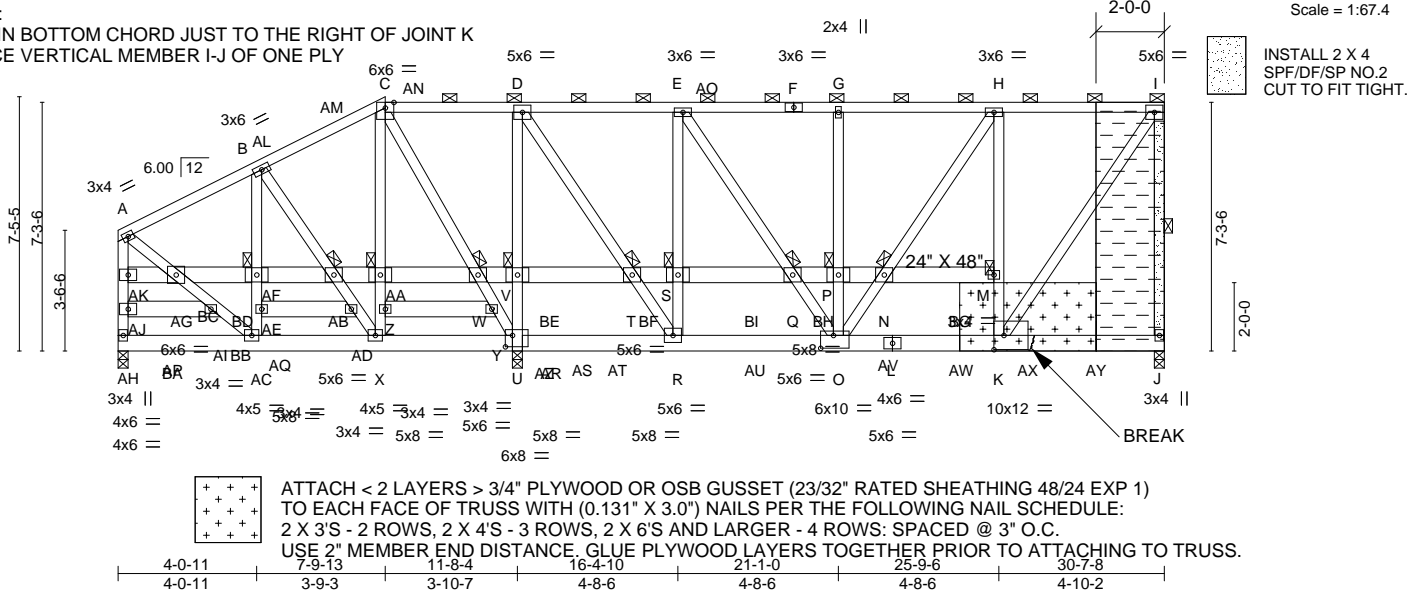


Plate Offsets (X,Y)-- [K:0-3-8,0-5-0], [O:0-4-8,0-4-8], [U:0-2-8,0-4-0]

LOADING (psf)	SPACING-	CSI.	DEFL.	PLATES	GRIP
TCLL 25.0	2-0-0	TC 0.63	in (loc) l/defl L/d	MT20	244/190
(Roof Snow=25.0)	Plate Grip DOL 1.15	BC 0.78	Vert(LL) -0.10 K-O >999 240		
TCDL 10.0	Lumber DOL 1.15	WB 0.65	Vert(CT) -0.15 K-O >999 180		
BCLL 0.0	Rep Stress Incr NO	Matrix-MS	Horz(CT) 0.01 J n/a n/a		
BCDL 10.0	Code IRC2018/TPI2014			Weight: 676 lb	FT = 20%

**LUMBER-**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x6 SP No.1  
WEBS 2x4 SP No.3 \*Except\*  
D-R,E-O,H-O,I-K: 2x4 SP No.2

**BRACING-**  
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals, and 2-0-0 oc purlins (6-0-0 max.): C-I.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: R-U.  
WEBS 1 Row at midpt I-J  
JOINTS 1 Brace at Jt(s): I, AF, AB, AA, W, V, T, N, M, P, Q, S

**REACTIONS.** (size) J=0-3-8, AH=0-3-8, U=0-3-8  
Max Horz AH=263(LC 9)  
Max Uplift J=763(LC 7), AH=47(LC 10), U=1199(LC 7)  
Max Grav J=4262(LC 26), AH=2592(LC 27), U=8560(LC 26)

**FORCES.** (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.  
TOP CHORD A-B=1347/38, B-C=1058/58, C-D=170/982, D-E=1522/306, E-G=2892/540, G-H=2894/541, H-I=2631/523, I-J=4086/728, AH-AJ=1757/13, AJ-AK=1689/32, A-AK=1562/39  
BOT CHORD AC-AH=219/287, X-AC=168/1251, U-X=106/765, R-U=899/239, O-R=367/1580, K-O=524/2632  
WEBS AC-AE=263/41, B-AB=906/134, AB-AD=881/124, X-AD=868/103, X-Z=119/1578, Z-AA=99/1613, C-AA=52/1625, C-W=2944/321, W-Y=3069/331, U-Y=3130/315, U-V=4449/725, D-V=4265/761, D-T=754/4397, R-T=758/4305, R-S=2451/394, E-S=2516/459, E-Q=409/2406, O-Q=407/2221, O-P=401/134, G-P=555/128, N-O=104/358, H-N=71/470, K-M=1039/190, H-M=991/204, I-K=823/4647, A-AG=0/1377, AG-AI=19/1466, AC-AI=35/1358

#### NOTES-

- 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:  
Top chords connected as follows: 2x4 - 1 row at 0-6-0 oc.  
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-5-0 oc.  
Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
- 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.
- Wind: ASCE 7-16; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; 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
- TCLL: ASCE 7-16; Pf=25.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat C; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Provide adequate drainage to prevent water ponding.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- Bearing at joint(s) U considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.

9. Provide a plate or equivalent at bearing(s) U to support reaction shown.

ATTACH < 2 LAYERS > 3/4" PLYWOOD OR OSB GUSSET (23/32" RATED SHEATHING 48/24 EXP 1) TO DAMAGED FACE OF TRUSS WITH THREE ROWS OF (0.131" X 3.0") SPACED @ 3" O.C. USE 2" MEMBER END DISTANCE. GLUE PLYWOOD LAYERS TOGETHER PRIOR TO ATTACHING TO TRUSS.



December 22, 2020

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

**MiTek**  
16023 Swingley Ridge Rd  
Chesterfield, MO 63117

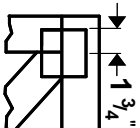
Job	Truss	Truss Type	Qty	Ply	Solaia
201470	GIRDER1	Half Hip Girder	1	2	I44106531

- NOTES-**
- 10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) AH except (jt=lb) J=763, U=1199.
  - 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.
  - 12) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
  - 13) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 589 lb down and 97 lb up at 4-6-0, and 614 lb down and 126 lb up at 6-6-0, and 687 lb down and 135 lb up at 8-6-0 on top chord, and 584 lb down and 50 lb up at 0-6-0, 709 lb down and 47 lb up at 2-6-0, 795 lb down and 79 lb up at 7-8-1, 737 lb down and 143 lb up at 10-6-6, 483 lb down and 135 lb up at 12-6-0, 483 lb down and 135 lb up at 14-6-0, 483 lb down and 135 lb up at 16-4-10, 483 lb down and 135 lb up at 18-6-0, 483 lb down and 135 lb up at 20-6-0, 483 lb down and 135 lb up at 22-5-1, 1786 lb down and 300 lb up at 24-5-12, 483 lb down and 135 lb up at 24-6-0, and 483 lb down and 135 lb up at 26-6-0, and 483 lb down and 135 lb up at 28-6-0 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.

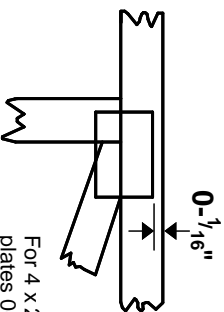
- LOAD CASE(S)** Standard
- 1) Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15
    - Uniform Loads (plf)
      - Vert: A-C=-70, C-I=-70, J-AH=-20, Y-Z=-20, AD-AE=-20, AI-AJ=-20, S-AK=-20, M-BH=-20, BH-BI=-20, S-BI=-20
    - Concentrated Loads (lb)
      - Vert: X=-795(F) R=-483(B) L=-483(B) AL=-539(B) AM=-564(B) AN=-663(B) AP=-584(B) AQ=-709(B) AR=-737(B) AS=-483(B) AT=-483(B) AU=-483(B) AV=-483(B) AW=-2268(F=-1786, B=-483) AX=-483(B) AY=-483(B)

# 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.

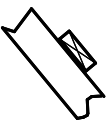
\* Plate location details available in **MiTek 20/20** software or upon request.

## PLATE SIZE

4 X 4

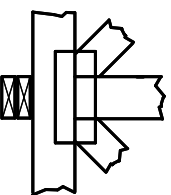
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## 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/TP1: National Design Specification for Metal Plate Connected Wood Truss Construction.  
DSB-89: 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)

