



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

Re: P210169-P210169-07
Roof-Vault Repair

The truss drawing(s) referenced below have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Premier Building Supply (Springhill, KS) 20300 W 207th Street.

Pages or sheets covered by this seal: I49787390 thru I49787390

My license renewal date for the state of Missouri is December 31, 2023.

Missouri COA: Engineering 001193



January 19, 2022

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 P210169-P210169-07	Truss G5	Truss Type Roof Special Girder	Qty 1	Ply 3	Roof-Vault Repair	149787390
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Premier Building Supply (Springhill, KS), Spring Hills, KS - 66083,

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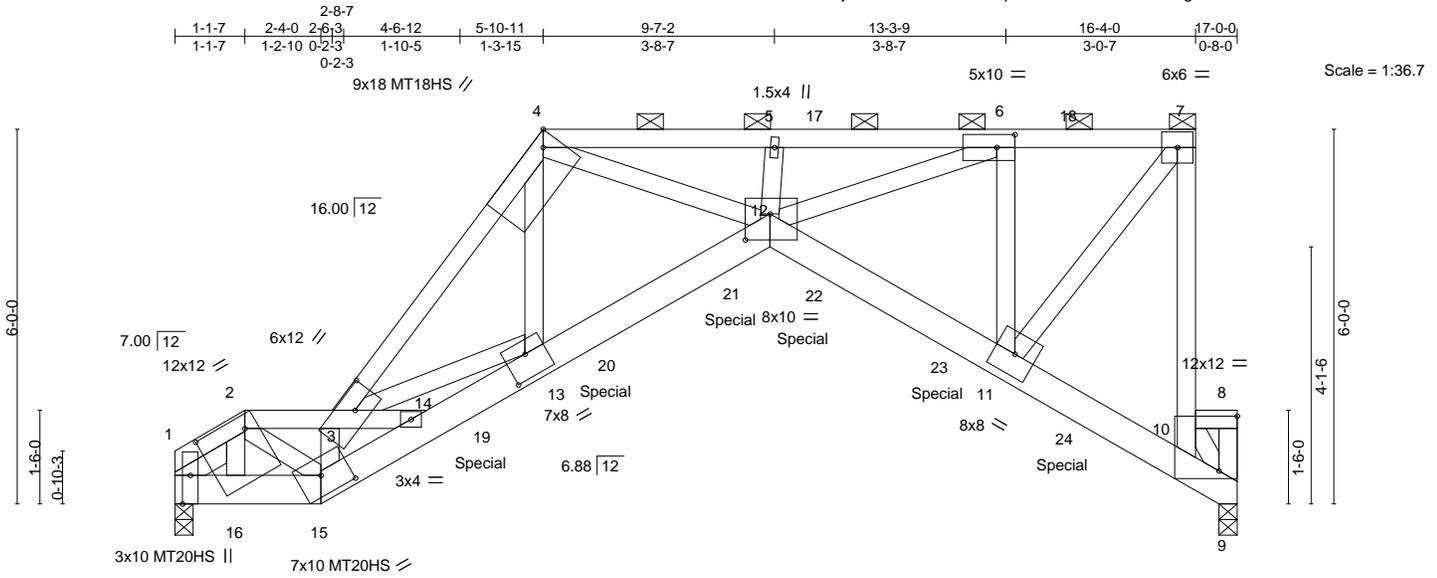


Plate Offsets (X, Y)--	[1:0-5-8,Edge], [2:0-9-8,0-2-8], [3:0-4-12,0-3-4], [4:0-2-13,Edge], [6:0-3-8,0-2-8], [8:Edge,0-10-8], [12:0-4-12,0-5-0], [13:0-4-0,0-4-8], [15:0-5-8,0-3-12]
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LOADING (psf)	SPACING-	CSI.	DEFL.	PLATES	GRIP
TCLL (roof) 25.0	2-0-0	TC 0.97	in (loc) l/defl L/d	MT20	118/123
Snow (Pf/Pg) 17.3/25.0	Plate Grip DOL 1.15	BC 0.68	Vert(LL) -0.31 12 >659 240	MT20HS	148/108
TCDL 10.0	Lumber DOL 1.15	WB 1.00	Vert(CT) -0.49 12 >415 180	MT18HS	244/190
BCLL 0.0 *	Rep Stress Incr NO	Matrix-SH	Horz(CT) 0.47 9 n/a n/a		
BCDL 10.0	Code IRC2018/TPI2014			Weight: 375 lb	FT = 20%

LUMBER-	BRACING-
TOP CHORD 2x4 SP No.2	TOP CHORD Sheathed or 5-8-5 oc purlins, except end verticals, and 2-0-0 oc purlins (3-7-13 max.): 2-14, 4-7, 8-10.
BOT CHORD 2x6 SPF No.2 *Except* 12-15: 2x6 SP 2400F 2.0E, 9-12: 1 1/2" x 5 1/2" 2.0E Microllam® LVL	BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 9-10.
WEBS 2x4 SP No.2	
SLIDER Left 2x4 SP No.2 0-11-13	

REACTIONS. (size) 1=0-3-8, 9=0-3-8
 Max Horz 1=214(LC 12)
 Max Uplift 1=-567(LC 9), 9=-615(LC 9)
 Max Grav 1=5487(LC 39), 9=5892(LC 39)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 1-2=-7325/761, 2-3=-10562/1132, 3-14=-2255/237, 3-4=-12222/1558, 4-5=-16241/2177,
 5-6=-16254/2181, 6-7=-4888/597, 8-9=-1316/93
 BOT CHORD 1-16=-688/4994, 15-16=-688/4989, 14-15=-1790/14836, 13-14=-1697/13709,
 12-13=-1187/8480, 11-12=-760/5803, 10-11=-151/1058, 9-10=-2070/236
 WEBS 2-16=-13/282, 2-15=-781/7176, 3-13=-3819/414, 4-13=-669/5670, 4-12=-1336/9950,
 6-12=-1699/12200, 6-11=-4916/740, 7-11=-1019/8327, 7-10=-6547/824,
 3-15=-11417/1348

- NOTES-**
- 3-ply truss to be connected together with 10d (0.120"x3") nails as follows:
 Top chords connected as follows: 2x4 - 1 row at 0-7-0 oc.
 Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-4-0 oc.
 Webs connected as follows: 2x4 - 1 row at 0-9-0 oc, Except member 15-3 2x4 - 1 row at 0-7-0 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.
 - 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; Ke=0.96; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone; cantilever left and right exposed; end vertical left and right exposed; Lumber DOL=1.60 plate grip DOL=1.60
 - TCLL: ASCE 7-16; Pr=25.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=25.0 psf; Pf=17.3 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, Lu=50-0-0
 - Unbalanced snow loads have been considered for this design.
 - Provide adequate drainage to prevent water ponding.
 - All plates are MT20 plates unless otherwise indicated.
 - The Fabrication Tolerance at joint 4 = 16%
 - 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.



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Continued on page 2

<p>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</p>	 16023 Swingley Ridge Rd Chesterfield, MO 63017
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Job P210169-P210169-07	Truss G5	Truss Type Roof Special Girder	Qty 1	Ply 3	Roof-Vault Repair Job Reference (optional)	I49787390
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Premier Building Supply (Springhill, KS), Spring Hills, KS - 66083,

8.530 s Dec 6 2021 MiTek Industries, Inc. Wed Jan 19 13:02:07 2022 Page 2
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NOTES-

- 12) 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.
- 13) Two H2.5T Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 1 and 9. This connection is for uplift only and does not consider lateral forces.
- 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.
- 15) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 16) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 950 lb down and 64 lb up at 2-7-1 on top chord, and 745 lb down and 80 lb up at 2-4-1, 931 lb down and 72 lb up at 12-6-11, 931 lb down and 67 lb up at 14-6-11, 1354 lb down and 196 lb up at 4-6-11, 1103 lb down and 159 lb up at 10-6-11, and 1438 lb down and 208 lb up at 8-6-11, and 1345 lb down and 194 lb up at 6-6-11 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: 1-2=-55, 2-3=-55, 3-4=-55, 4-7=-55, 8-10=-55, 1-15=-20, 12-15=-20, 9-12=-20

Concentrated Loads (lb)

Vert: 3=-926 8=-941 15=-663(F) 19=-951(F) 20=-945(F) 21=-1010(F) 22=-775(F) 23=-931(F) 24=-931(F)

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

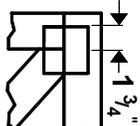
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



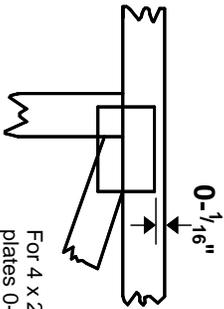
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Symbols

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 20/20 software** or upon request.

PLATE SIZE

4 X 4

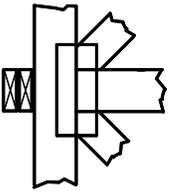
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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



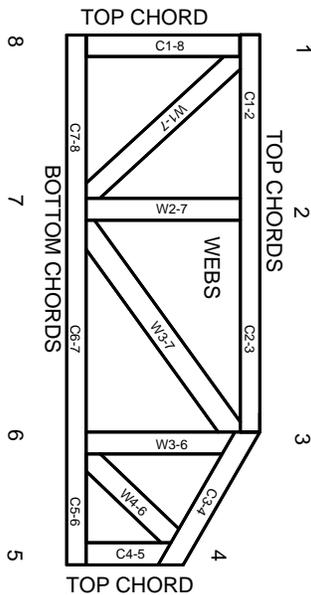
Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

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