

RE: 4736878 - Tri Pointe Homes

Trenco  
818 Soundside Rd  
Edenton, NC 27932

**Site Information:**

Project Customer: Tri Pointe Homes    Project Name:  
Lot/Block: 347    Subdivision: SERENITY  
Address: 67 SHADY CREEK WAY  
City: FUQUAY-VARINA    State: NC

**Name Address and License # of Structural Engineer of Record, If there is one, for the building.**

Name:    License #:  
Address:  
City, County:    State:

**General Truss Engineering Criteria & Design Loads (Individual Truss Design Drawings Show Special Loading Conditions):**

Design Code: IRC2015/TPI2014    Design Program: MiTek 20/20 8.8  
Wind Code: ASCE 7-10    Design Method: MWFRS (Envelope)/C-C hybrid Wind ASCE 7-10  
Wind Speed: 115 mph  
Roof Load: 40.0 psf    Floor Load: N/A psf

This package includes 4 individual, dated Truss Design Drawings and 0 Additional Drawings.

No.	Seal#	Job ID#	Truss Name	Date
1	I75325404	4736878	B01	8/1/25
2	I75325405	4736878	C01	8/1/25
3	I75325406	4736878	D01	8/1/25
4	I75325407	4736878	J06	8/1/25

The truss drawing(s) referenced above have been prepared by  
Truss Engineering Co. under my direct supervision based on the parameters  
provided by Builders FirstSource (Apex,NC).

Truss Design Engineer's Name: Gilbert, Eric

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

**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.



August 1, 2025

Gilbert, Eric

RE: \$JOBNAME - \$JOBDESC

Trenco  
818 Soundside Rd  
Edenton, NC 27932

**Site Information:**

Project Customer: \$SI\_CUSTOMER    Project Name: \$SI\_JOBNAME  
Lot/Block: \$SI\_LOTNUM                      Subdivision: \$SI\_SUBDIV  
Address: \$SI\_SITEADDR  
City, County: \$SI\_SITECITY                      State: \$SI\_SITESTATE

RE: \$JOBNAME - \$JOBDESC

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**Site Information:**

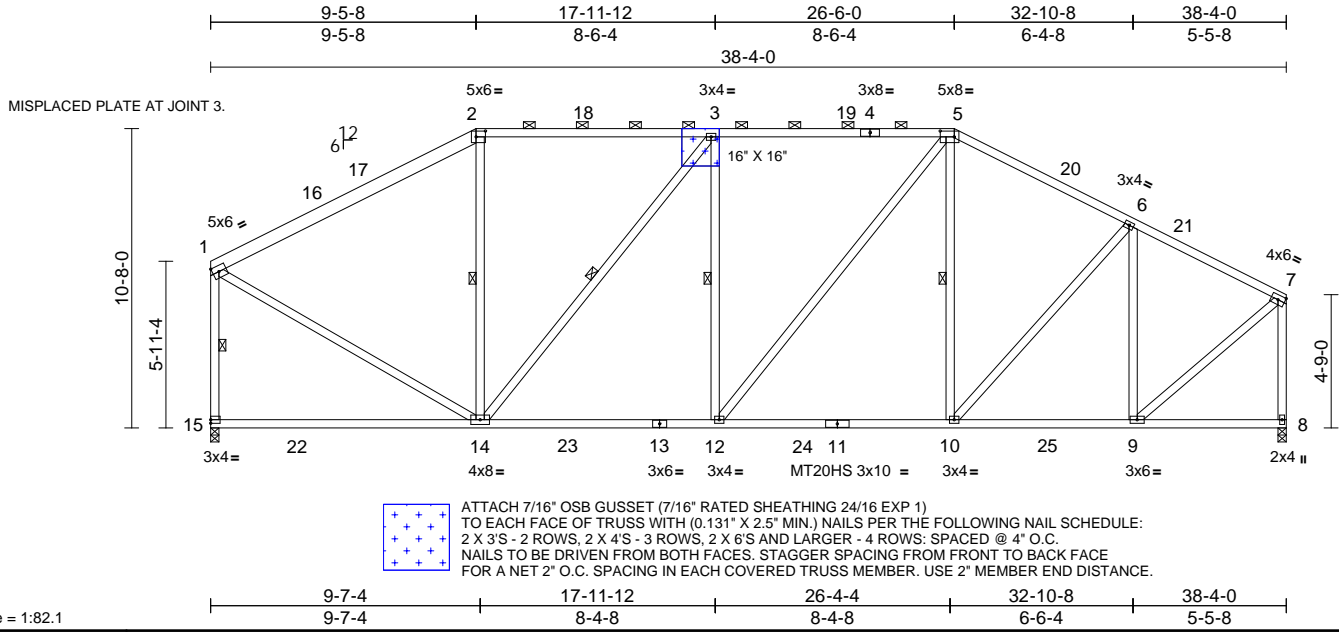
Project Customer: \$SI\_CUSTOMER    Project Name: \$SI\_JOBNAME  
Lot/Block: \$SI\_LOTNUM                      Subdivision: \$SI\_SUBDIV  
Address: \$SI\_SITEADDR  
City, County: \$SI\_SITECITY                      State: \$SI\_SITESTATE

Job	Truss	Truss Type	Qty	Ply	Tri Pointe Homes	175325404
4736878	B01	Piggyback Base	3	1	Job Reference (optional)	

Builders FirstSource (Apex, NC), Apex, NC - 27523,

Run: 8.83 S Jul 24 2025 Print: 8.830 S Jul 24 2025 MiTek Industries, Inc. Thu Jul 31 14:17:05  
ID:Dwx6L11\_1j5KDzf37u7tzA36O-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:82.1

Plate Offsets (X, Y): [2:0-4-0,0-2-8], [5:0-6-0,0-2-8]

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.78	Vert(LL)	-0.22	14-15	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.88	Vert(CT)	-0.44	14-15	>999	240	MT20HS	187/143
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.72	Horz(CT)	0.05	8	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS		Wind(LL)	0.04	12	>999	240	Weight: 275 lb	FT = 20%

#### LUMBER

TOP CHORD 2x4 SP No.1 \*Except\* 1-2:2x6 SP No.2, 5-7:2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
WEBS 2x4 SP No.3 \*Except\* 14-3,12-5:2x4 SP No.2

#### BRACING

TOP CHORD Structural wood sheathing directly applied or 4-2-2 oc purlins, except end verticals, and 2-0-0 oc purlins (3-8-8 max.): 2-5.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.  
WEBS 1 Row at midpt 1-15, 2-14, 5-10, 3-12, 3-14

#### REACTIONS

(size) 8=0-3-8, 15=0-3-8  
Max Horiz 15=211 (LC 8)  
Max Grav 8=1570 (LC 2), 15=1587 (LC 2)

#### FORCES

(lb) - Maximum Compression/Maximum Tension

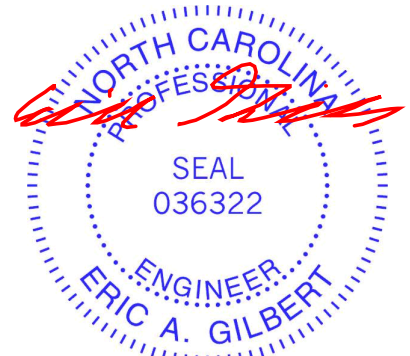
TOP CHORD 1-2=-1351/146, 2-3=-1114/179, 3-5=-1535/188, 5-6=-1527/163, 6-7=-1232/112, 7-8=-1526/114, 1-15=-1436/148  
BOT CHORD 14-15=-150/184, 12-14=-98/1535, 10-12=-59/1298, 9-10=-78/1059, 8-9=-42/55  
WEBS 7-9=-59/1374, 2-14=-2/246, 5-10=-129/140, 6-9=-727/114, 1-14=-52/1255, 6-10=-55/412, 3-12=-194/196, 3-14=-722/103, 5-12=-102/462

#### NOTES

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

- Wind: ASCE 7-10; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=32ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) 9-9-12 to 13-7-12, Interior (1) 13-7-12 to 19-1-8, Exterior (2) 19-1-8 to 22-11-8, Interior (1) 22-11-8 to 36-2-0, Exterior (2) 36-2-0 to 40-0-0, Interior (1) 40-0-0 to 47-10-4 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
- 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.
- 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



August 1,2025

**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.sbcacomponents.com)

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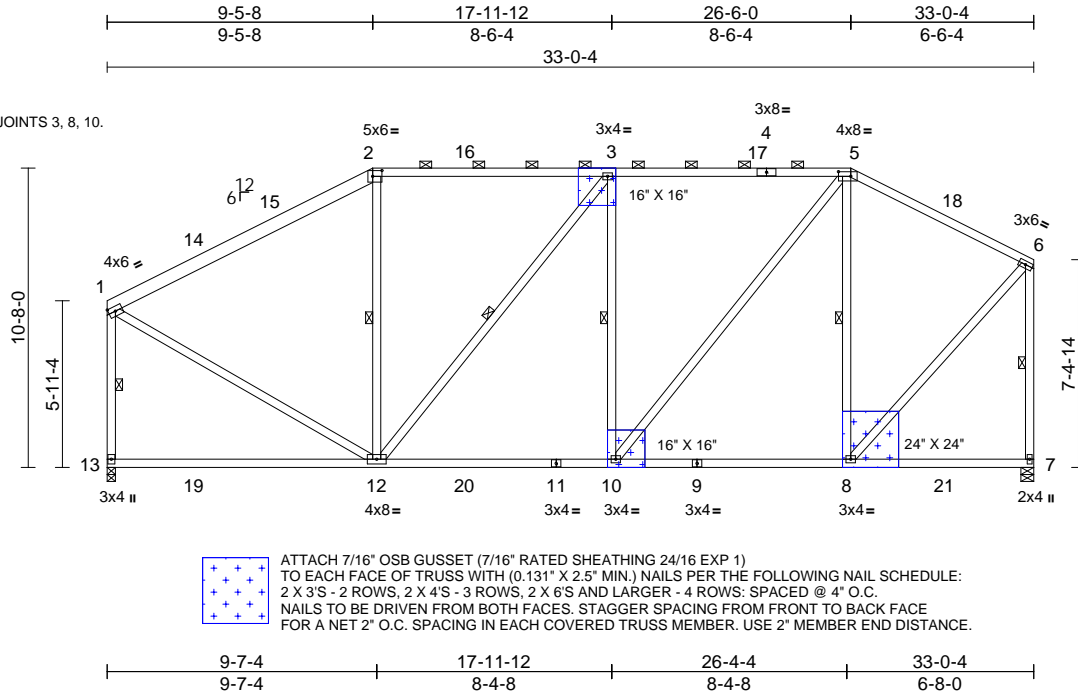
Job 4736878	Truss C01	Truss Type Piggyback Base	Qty 9	Ply 1	Tri Pointe Homes Job Reference (optional)	I75325405
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Builders FirstSource (Apex, NC), Apex, NC - 27523,

Run: 8.83 S Jul 24 2025 Print: 8.830 S Jul 24 2025 MiTek Industries, Inc. Thu Jul 31 14:17:06  
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Page: 1

MISPLACED PLATES AT JOINTS 3, 8, 10.



Scale = 1:82.1

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

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.90	Vert(LL)	-0.21	12-13	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.80	Vert(CT)	-0.43	12-13	>904	240		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.45	Horz(CT)	0.03	7	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS		Wind(LL)	0.03	8-10	>999	240	Weight: 242 lb	FT = 20%

#### LUMBER

TOP CHORD 2x4 SP No.2 \*Except\* 1-2:2x6 SP No.2,  
4-2:2x4 SP No.1  
BOT CHORD 2x4 SP No.2  
WEBS 2x4 SP No.3 \*Except\* 3-12,10-5:2x4 SP No.2

#### BRACING

TOP CHORD Structural wood sheathing directly applied or  
4-6-15 oc purlins, except end verticals, and  
2-0-0 oc purlins (2-2-0 max.): 2-5.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc  
bracing.  
WEBS 1 Row at midpt 6-7, 1-13, 2-12, 5-8, 3-10,  
3-12

#### REACTIONS

(size) 7=0-5-8, 13=0-3-8  
Max Horiz 13=242 (LC 9)  
Max Uplift 7=3 (LC 9)  
Max Grav 7=1424 (LC 2), 13=1363 (LC 2)

#### FORCES

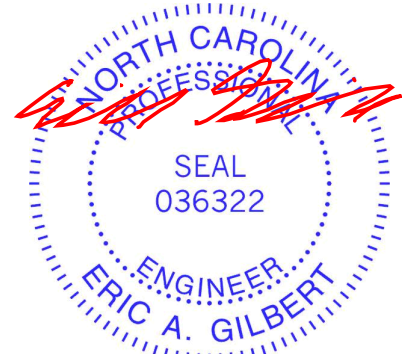
(lb) - Maximum Compression/Maximum  
Tension  
TOP CHORD 1-2=-1124/116, 2-3=-910/151, 3-5=-1150/162,  
5-6=-892/141, 6-7=-1315/130,  
1-13=-1224/136  
BOT CHORD 12-13=-208/220, 10-12=-149/1150,  
8-10=-95/731, 7-8=-72/86  
WEBS 2-12=-79/172, 5-8=-575/156, 3-10=-360/180,  
3-12=-442/106, 5-10=-109/691,  
6-8=-69/1078, 1-12=-44/1020

#### NOTES

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

- Wind: ASCE 7-10; Vult=115mph (3-second gust)  
Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=32ft; Cat.  
II; Exp B; Enclosed; MWFRS (envelope) exterior zone  
and C-C Exterior (2) 9-9-12 to 13-1-6, Interior (1) 13-1-6  
to 19-1-8, Exterior (2) 19-1-8 to 22-5-2, Interior (1)  
22-5-2 to 36-2-0, Exterior (2) 36-2-0 to 39-5-10, Interior  
(1) 39-5-10 to 42-6-8 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
- 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.
- \* 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.
- Provide mechanical connection (by others) of truss to  
bearing plate capable of withstanding 3 lb uplift at joint 7.
- 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



August 1, 2025

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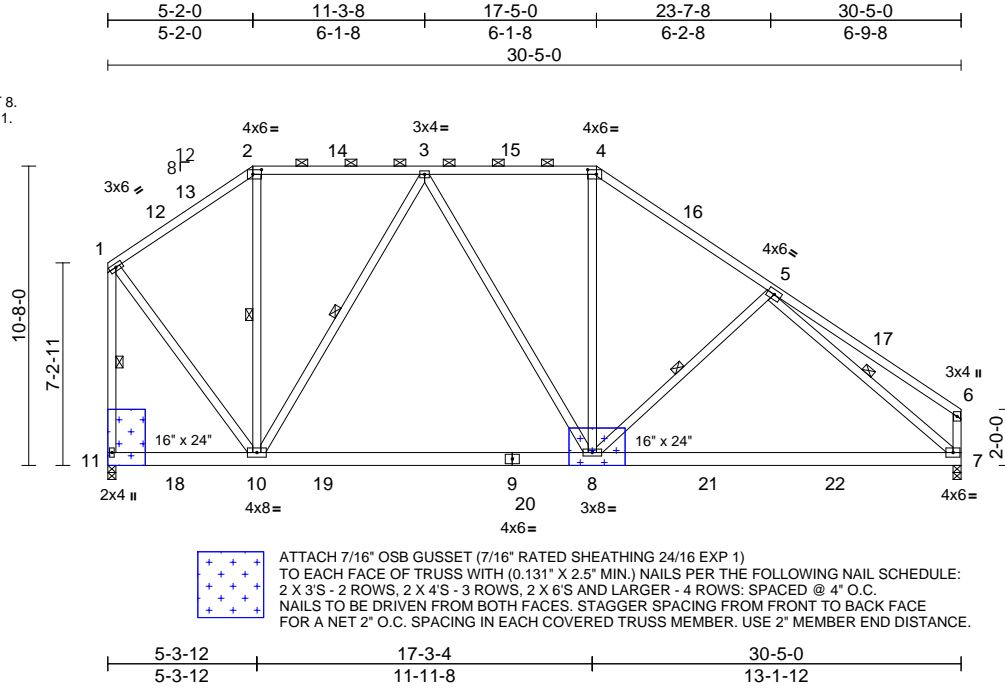
Job	Truss	Truss Type	Qty	Ply	Tri Pointe Homes	I75325406
4736878	D01	Piggyback Base	3	1	Job Reference (optional)	

Builders FirstSource (Apex, NC), Apex, NC - 27523,

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Page: 1

MISPLACED PLATE AT JOINT 8.  
MISSING PLATES AT JOINT 11.



ATTACH 7/16\" OSB GUSSET (7/16\" RATED SHEATHING 24/16 EXP 1)  
TO EACH FACE OF TRUSS WITH (0.131\" X 2.5\" MIN.) NAILS PER THE FOLLOWING SCHEDULE:  
2 X 3'S - 2 ROWS, 2 X 4'S - 3 ROWS, 2 X 6'S AND LARGER - 4 ROWS: SPACED @ 4\" O.C.  
NAILS TO BE DRIVEN FROM BOTH FACES. STAGGER SPACING FROM FRONT TO BACK FACE  
FOR A NET 2\" O.C. SPACING IN EACH COVERED TRUSS MEMBER. USE 2\" MEMBER END DISTANCE.

Scale = 1:82.1

Plate Offsets (X, Y): [2:0-3-12,0-2-0], [4:0-3-12,0-2-0]

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.73	Vert(LL)	-0.19	7-8	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.79	Vert(CT)	-0.38	7-8	>955	240		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.52	Horz(CT)	0.03	7	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS		Wind(LL)	0.02	8-10	>999	240	Weight: 235 lb	FT = 20%

#### LUMBER

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x6 SP No.2  
WEBS 2x4 SP No.3

#### BRACING

TOP CHORD Structural wood sheathing directly applied or 4-8-7 oc purlins, except end verticals, and 2-0-0 oc purlins (5-6-6 max.): 2-4.

BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

WEBS 1 Row at midpt 5-8, 1-11, 5-7, 2-10, 3-10

REACTIONS (size) 7=0-3-8, 11=0-3-8

Max Horiz 11=250 (LC 8)

Max Uplift 7=-10 (LC 13)

Max Grav 7=1243 (LC 2), 11=1285 (LC 2)

#### FORCES

(lb) - Maximum Compression/Maximum

Tension

TOP CHORD 1-2=-747/138, 2-3=-568/146, 3-4=-976/140, 4-5=-1269/134, 5-6=-322/82, 1-11=-1246/87, 6-7=-302/79

BOT CHORD 10-11=-211/219, 8-10=-63/871, 7-8=-48/1053

WEBS 5-8=-225/209, 1-10=-42/936, 5-7=-1214/61, 4-8=0/377, 2-10=-8/169, 3-10=-642/123, 3-8=-16/308

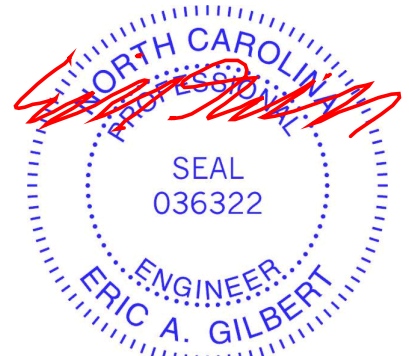
#### NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-10; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=32ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) interior zone and C-C Exterior (2) 7-8-4 to 10-8-12, Interior (1) 10-8-12 to 12-8-8, Exterior (2) 12-8-8 to 15-9-0, Interior (1) 15-9-0 to 24-11-8, Exterior (2) 24-11-8 to 28-0-0, Interior (1) 28-0-0 to 37-9-12 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

- Provide adequate drainage to prevent water ponding.

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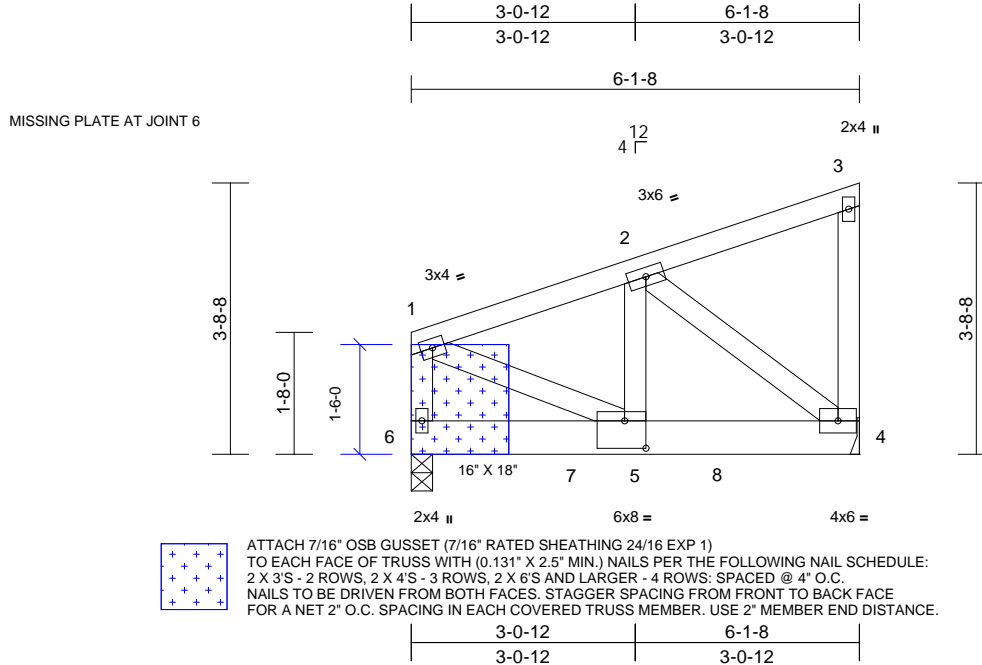
Job	Truss	Truss Type	Qty	Ply	Tri Pointe Homes	I75325407
4736878	J06	Jack-Closed Girder	1	1	Job Reference (optional)	

Builders FirstSource (Apex, NC), Apex, NC - 27523,

Run: 8.83 S Jul 24 2025 Print: 8.830 S Jul 24 2025 MiTek Industries, Inc. Thu Jul 31 14:17:07

Page: 1

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Scale = 1:31.5

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

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.17	Vert(LL)	-0.01	4-5	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.58	Vert(CT)	-0.02	4-5	>999	240		
BCLL	0.0*	Rep Stress Incr	NO	WB	0.44	Horz(CT)	0.00	4	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MP		Wind(LL)	0.01	4-5	>999	240	Weight: 42 lb	FT = 20%

#### LUMBER

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x6 SP No.2  
WEBS 2x4 SP No.3

#### BRACING

TOP CHORD Structural wood sheathing directly applied or 5-7-12 oc purlins, except end verticals.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS** (size) 4= Mechanical, 6=0-3-8  
Max Horiz 6=104 (LC 5)  
Max Uplift 4=-56 (LC 8), 6=-39 (LC 4)  
Max Grav 4=1060 (LC 1), 6=992 (LC 1)

**FORCES** (lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-6=-839/48, 1-2=-1041/44, 2-3=-58/20, 3-4=-73/19  
BOT CHORD 5-6=-99/2, 4-5=-68/971  
WEBS 1-5=-36/1067, 2-5=-12/932, 2-4=-1237/74

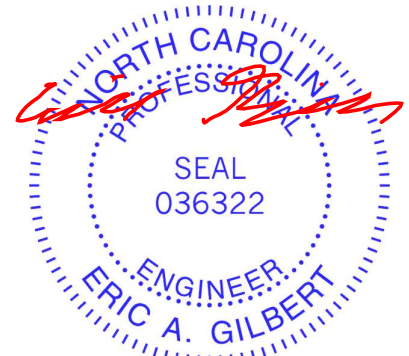
#### NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-10; Vult=115mph (3-second gust) Vasd=91mph; TCDL=6.0psf; BCDL=6.0psf; h=32ft; Cat. II; Exp B; 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
- 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.
- Refer to girder(s) for truss to truss connections.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 39 lb uplift at joint 6 and 56 lb uplift at joint 4.

- Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 793 lb down and 27 lb up at 2-2-4, and 793 lb down and 27 lb up at 4-2-4 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- In the LOAD CASE(S) section, loads applied to the face of the truss are noted as front (F) or back (B).

#### LOAD CASE(S) Standard

- Dead + Roof Live (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-3=-60, 4-6=-20  
Concentrated Loads (lb)  
Vert: 7=-793 (B), 8=-793 (B)



August 1, 2025

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Edenton, NC 27932

# Symbols

## PLATE LOCATION AND ORIENTATION



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

## PLATE SIZE

**4 X 4**

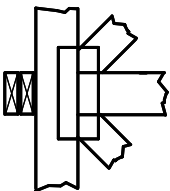
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## 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.

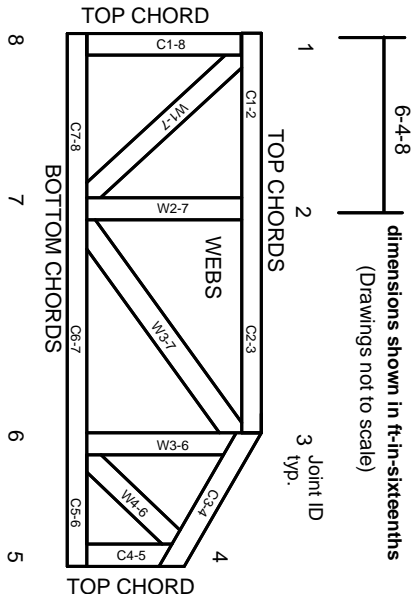
## BEARING



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: 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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# 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.

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