

RE: 4405089 - Tri Pointe Homes - 68 SERENE XING

Trenco  
818 Soundside Rd  
Edenton, NC 27932

**Site Information:**

Project Customer: Tri Pointe Homes    Project Name:  
Lot/Block: 279    Subdivision: SERENITY  
Address: 68 SERENE XING  
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 8.6  
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 2 individual, dated Truss Design Drawings and 0 Additional Drawings.

No.	Seal#	Job ID#	Truss Name	Date
1	I70971505	4405089		1/24/25
2	I70971506	4405089	F02	1/24/25

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.



January 24, 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

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

Builders FirstSource (Apex, NC), Apex, NC - 27523, Run: 8.63 S Sep 26 2024 Print: 8.630 S Sep 26 2024 MiTek Industries, Inc. Thu Jan 23 14:23:21 Page: 1  
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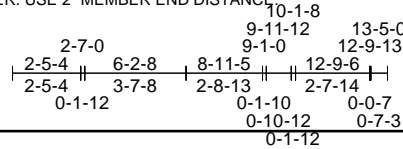
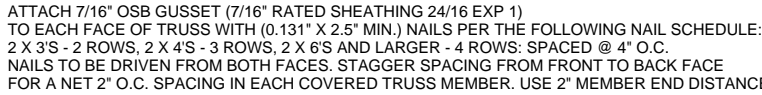
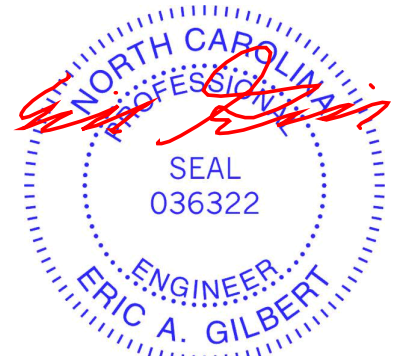


Plate Offsets (X, Y): [3:0-5-8,0-2-4], [4:Edge,0-3-8]

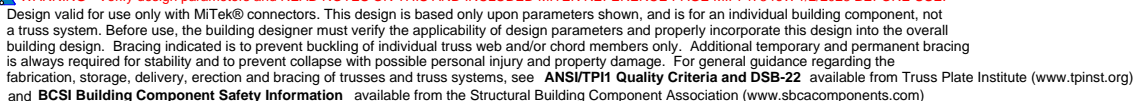
<b>Loading</b>	(psf)	<b>Spacing</b>	2-6-0	<b>CSI</b>		<b>DEFL</b>	in	(loc)	l/defl	L/d	<b>PLATES</b>	<b>GRIP</b>
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.97	Vert(LL)	-0.13	11-12	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.89	Vert(CT)	-0.26	11-12	>611	240		
BCLL	0.0*	Rep Stress Incr	NO	WB	0.50	Horz(CT)	0.01	5	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS		Wind(LL)	0.02	5-6	>999	240	Weight: 155 lb	FT = 20%

- 2) Wind: ASCE 7-10; Vult=115mph (3-second gust)  
Vasd=91mph; TCDDL=6.0psf; BCDL=6.0psf; h=32ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) interior zone and C-C Exterior (2) 12-1-12 to 15-1-12, Interior (1) 15-1-12 to 21-10-0, Exterior (2) 21-10-0 to 25-3-4 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
- 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 BCDL = 10.0psf.
- 6) Bearings are assumed to be: Joint 14 SP No.2 crushing capacity of 565 psi.
- 7) Refer to girder(s) for truss to truss connections.
- 8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 112 lb uplift at joint 5.
- 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



January 24, 2025



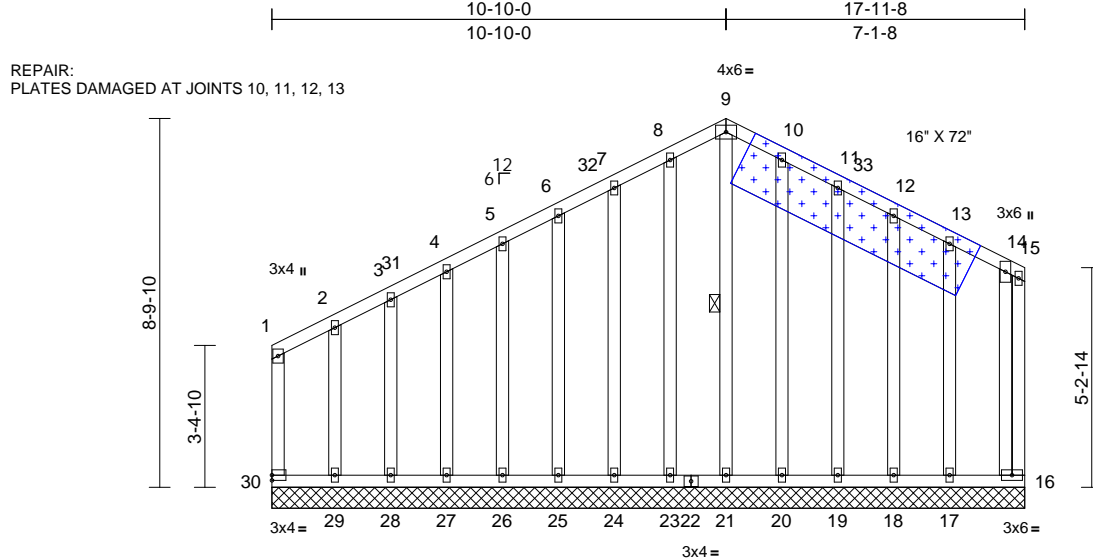
818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Tri Pointe Homes - 68 SERENE XING
4405089	F02	Common Supported Gable	1	1	Job Reference (optional)
					170971506

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

Run: 8.63 S Sep 26 2024 Print: 8.630 S Sep 26 2024 MiTek Industries, Inc. Thu Jan 23 14:23:22  
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Page: 1



REPAIR:  
PLATES DAMAGED AT JOINTS 10, 11, 12, 13



ATTACH 7/16\"

Scale = 1:55

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	0.54	Vert(LL)	n/a	-	n/a	999	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.25	Vert(TL)	n/a	-	n/a	999	
BCLL	0.0*	Rep Stress Incr	YES	WB	0.25	Horiz(TL)	0.00	16	n/a	n/a	
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MR							
										Weight: 185 lb	FT = 20%

#### LUMBER

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

#### BRACING

TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD	Rigid ceiling directly applied or 10-0-0 oc bracing.
WEBS	1 Row at midpt

#### REACTIONS

(size)	16=17-11-8, 17=17-11-8, 18=17-11-8, 19=17-11-8, 20=17-11-8, 21=17-11-8, 23=17-11-8, 24=17-11-8, 25=17-11-8, 26=17-11-8, 27=17-11-8, 28=17-11-8, 29=17-11-8, 30=17-11-8
Max Horiz	30=183 (LC 9)
Max Uplift	16=188 (LC 9), 17=151 (LC 8), 18=45 (LC 9), 19=20 (LC 13), 20=11 (LC 13), 23=7 (LC 12), 24=24 (LC 12), 25=19 (LC 12), 26=18 (LC 12), 27=24 (LC 12), 28=21 (LC 8), 29=270 (LC 9), 30=142 (LC 8)
Max Grav	16=156 (LC 10), 17=295 (LC 11), 18=108 (LC 19), 19=108 (LC 24), 20=109 (LC 24), 21=108 (LC 21), 23=110 (LC 23), 24=107 (LC 23), 25=107 (LC 1), 26=107 (LC 1), 27=107 (LC 23), 28=122 (LC 20), 29=243 (LC 10), 30=252 (LC 11)

#### FORCES

(lb) - Maximum Compression/Maximum Tension

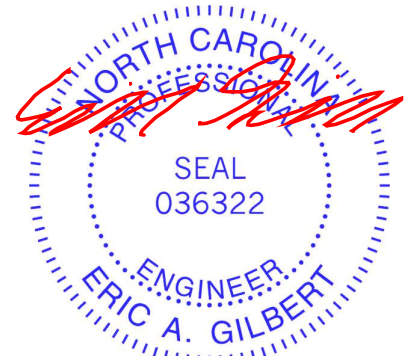
TOP CHORD	1-30=-129/77, 1-2=-112/73, 2-3=-55/61, 3-4=-56/98, 4-5=-51/123, 5-6=-59/148, 6-7=-68/173, 7-8=-78/201, 8-9=-84/218, 9-10=-84/211, 10-11=-78/179, 11-12=-68/140, 12-13=-68/118, 13-14=-60/124, 14-15=-198/186, 15-16=-408/338
BOT CHORD	29-30=-99/98, 28-29=-99/98, 27-28=-99/98, 26-27=-99/98, 25-26=-99/98, 24-25=-99/98, 23-24=-99/98, 21-23=-99/98, 20-21=-99/98, 19-20=-99/98, 18-19=-99/98, 17-18=-99/98, 16-17=-99/98
WEBS	9-21=-123/21, 8-23=-83/59, 7-24=-81/70, 6-25=-80/41, 5-26=-80/40, 4-27=-80/42, 3-28=-80/67, 2-29=-148/175, 10-20=-83/54, 11-19=-81/72, 12-18=-79/100, 13-17=-189/118, 14-16=-481/625

#### 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 and C-C Corner (3) 4-11-0 to 7-11-0, Exterior (2) 7-11-0 to 15-7-4, Corner (3) 15-7-4 to 18-7-4, Exterior (2) 18-7-4 to 22-7-0 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
- 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.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
- Gable studs spaced at 1-4-0 oc.
- 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.
- All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 142 lb uplift at joint 30, 188 lb uplift at joint 16, 7 lb uplift at joint 23, 24 lb uplift at joint 24, 19 lb uplift at joint 25, 18 lb uplift at joint 26, 24 lb uplift at joint 27, 21 lb uplift at joint 28, 270 lb uplift at joint 29, 11 lb uplift at joint 20, 20 lb uplift at joint 19, 45 lb uplift at joint 18 and 151 lb uplift at joint 17.

LOAD CASE(S) Standard



January 24, 2025

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

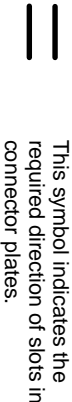
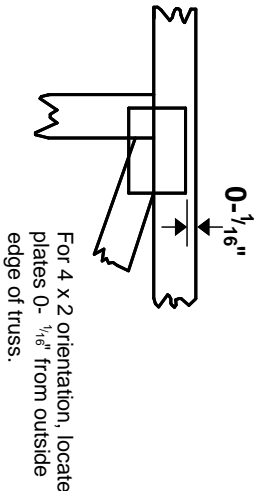
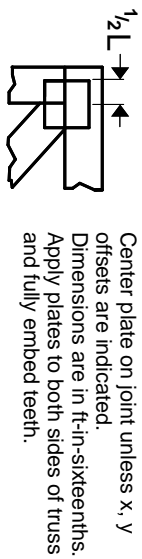
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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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Edenton, NC 27932

# Symbols

## PLATE LOCATION AND ORIENTATION



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

## PLATE SIZE

**4 X 4**

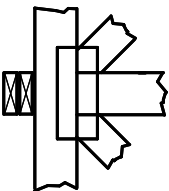
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## 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

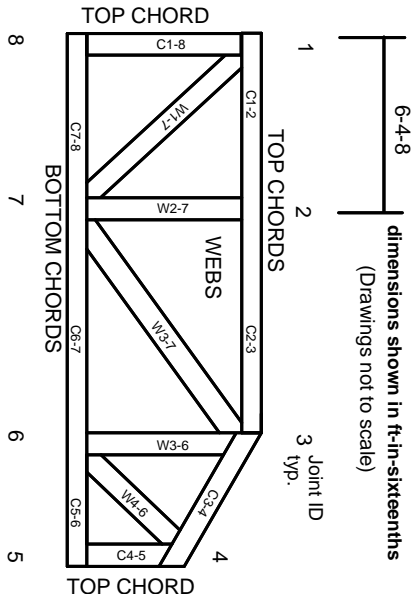


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

## 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