

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: 2502596-25453
1054 Serenity

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by 84 Lumber 2383 (Dunn, NC).

Pages or sheets covered by this seal: I75586054 thru I75586055

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

North Carolina COA: C-0844



August 12, 2025

Gilbert, Eric

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	1054 Serenity	175586054
2502596-25453	J02	Jack-Open	8	1	Job Reference (optional)	

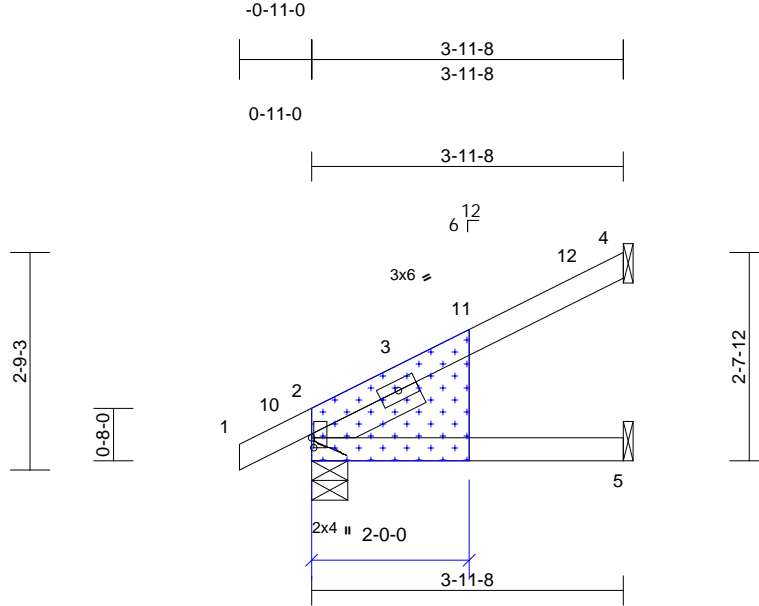
84 Lumber-2383 (Dunn, NC), Dunn, NC - 28334,

Run: 8.83 S Jul 24 2025 Print: 8.830 S Jul 24 2025 MiTek Industries, Inc. Tue Aug 12 15:19:30

Page: 1

ID:1iOAEZ5iu7?jAXy2L9luNDzGf4K-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

REPAIR: 6" CRACK IN BOTTOM CHORD AT JOINT 2



Scale = 1:29.3

Plate Offsets (X, Y): [2:0-1-8,0-0-5]

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	0.20	Vert(LL)	0.01	5-8	>999	240	MT20	244/190
Snow (Pf/Pg)	11.5/15.0	Lumber DOL	1.15	BC	0.16	Vert(CT)	-0.02	5-8	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.00	Horz(CT)	0.01	2	n/a	n/a		
BCLL	0.0*	Code	IRC2015/TPI2014	Matrix-MP								
BCDL	10.0											
											Weight: 16 lb	FT = 20%

LUMBER

TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
SLIDER Left 2x4 SP No.2 -- 1-6-0

BRACING

TOP CHORD Structural wood sheathing directly applied or 3-11-8 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS (size) 2=0-5-8, 4= Mechanical, 5= Mechanical
Max Horiz 2=71 (LC 16)
Max Uplift 2=-18 (LC 16), 4=-42 (LC 16), 5=-1 (LC 16)
Max Grav 2=217 (LC 2), 4=99 (LC 2), 5=70 (LC 7)

FORCES (lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=0/25, 2-4=-127/35
BOT CHORD 2-5=-113/73

NOTES

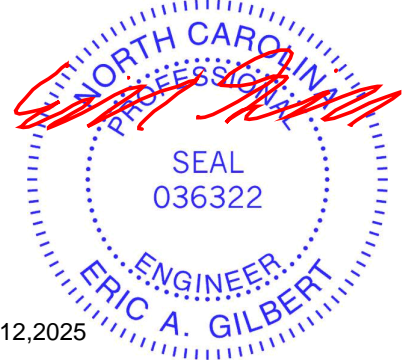
- Wind: ASCE 7-10; Vult=115mph (3-second gust)
Vasd=91mph; TCDL=6.0psf; BCDL=3.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) -0-11-0 to 2-1-0, Interior (1) 2-1-0 to 3-10-12 zone; cantilever left and right exposed; end vertical left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- TCLL: ASCE 7-10; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=15.0 psf (ground snow); Pf=11.5 psf (flat roof snow: Lum DOL=1.15 Plate DOL=1.15); Category II; Exp B; Partially Exp.; Ct=1.10
- Unbalanced snow loads have been considered for this design.

- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 11.5 psf on overhangs non-concurrent with other live loads.
- Building Designer/Project engineer responsible for verifying Rain Load = 5.0 (psf) covers rain loading requirements specific to the use of this truss component.
- 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 42 lb uplift at joint 4, 18 lb uplift at joint 2 and 1 lb uplift at joint 5.

LOAD CASE(S) Standard



ATTACH 1/2" PLYWOOD OR OSB GUSSET (15/32" RATED SHEATHING 32/16 EXP 1) TO EACH FACE OF TRUSS WITH (0.131" X 2.5" MIN.) NAILS PER THE FOLLOWING NAIL 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.



August 12, 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.sbcacompnents.com)

ENGINEERING BY
TRENCO
A MiTek Affiliate

818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	1054 Serenity	I75586055
2502596-25453	AE01	Common Supported Gable	1	1	Job Reference (optional)	

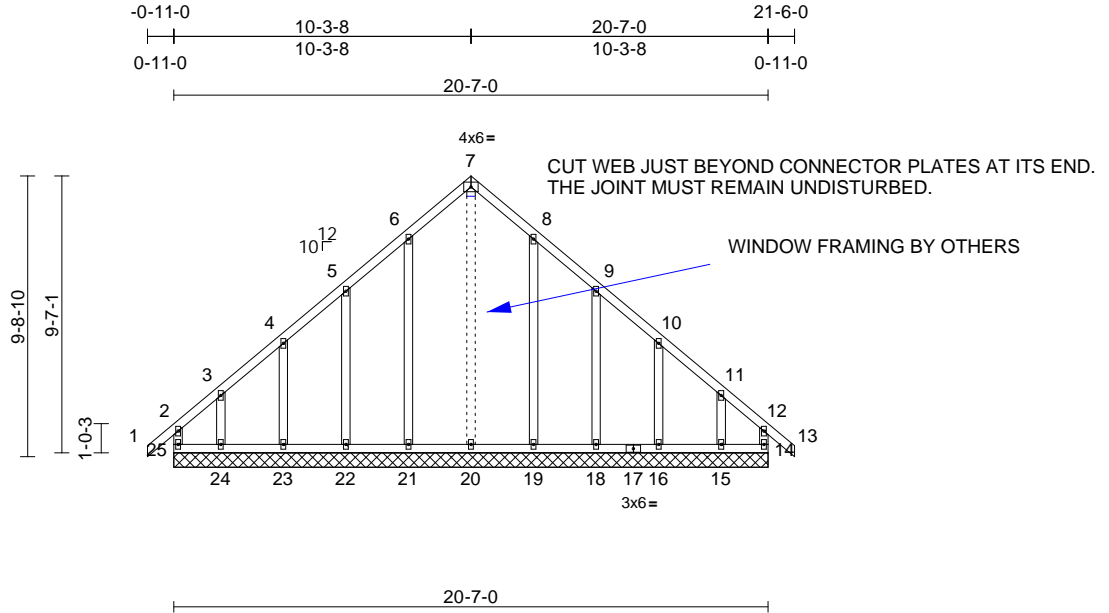
84 Lumber-2383 (Dunn, NC), Dunn, NC - 28334,

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ID:Y1ZUyGc8mMcMwRwXxGR7Dizx4kd-RfC?PsB70Hq3NSgPqnL8w3uITxbGKwRCDoi7J4zJC?f

REPAIR: REMOVE VERTICAL 7-20



Scale = 1:79.8

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	0.09	Vert(LL)	n/a	-	n/a	999	244/190
Snow (Pf/Pg)	11.5/15.0	Lumber DOL	1.15	BC	0.08	Vert(CT)	n/a	-	n/a	999	
TCDL	10.0	Rep Stress Incr	YES	WB	0.14	Horz(CT)	0.00	14	n/a	n/a	
BCLL	0.0*	Code	IRC2015/TPI2014	Matrix-MR							
BCDL	10.0										
Weight: 144 lb FT = 20%											

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

BRACING
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.
WEBS 1 Row at midpt 7-20

REACTIONS (size)
14=20-7-0, 15=20-7-0, 16=20-7-0, 18=20-7-0, 19=20-7-0, 20=20-7-0, 21=20-7-0, 22=20-7-0, 23=20-7-0, 24=20-7-0, 25=20-7-0
Max Horiz 25=203 (LC 13)
Max Uplift 14=73 (LC 11), 15=136 (LC 15), 16=68 (LC 15), 18=82 (LC 15), 19=72 (LC 15), 21=71 (LC 14), 22=79 (LC 14), 23=62 (LC 14), 24=139 (LC 14), 25=104 (LC 10)
Max Grav 14=183 (LC 26), 15=222 (LC 27), 16=216 (LC 31), 18=209 (LC 27), 19=215 (LC 27), 20=251 (LC 29), 21=207 (LC 26), 22=192 (LC 26), 23=189 (LC 30), 24=202 (LC 26), 25=198 (LC 27)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 2-25=-161/83, 1-2=0/41, 2-3=-153/144, 3-4=-106/106, 4-5=-93/126, 5-6=-144/169, 6-7=-199/231, 7-8=-199/231, 8-9=-144/169, 9-10=-87/111, 10-11=-81/83, 11-12=-121/110, 12-13=0/41, 12-14=-141/58
BOT CHORD 24-25=-94/107, 23-24=-94/107, 22-23=-94/107, 21-22=-94/107, 20-21=-94/107, 19-20=-94/107, 18-19=-94/107, 16-18=-94/107, 15-16=-94/107, 14-15=-94/107

WEBS
7-20=-246/142, 6-21=-148/82, 5-22=-136/89, 4-23=-140/81, 3-24=-136/112, 8-19=-147/81, 9-18=-136/89, 10-16=-141/82, 11-15=-133/108

- 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=3.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner (3) -0-11-0 to 2-1-0, Exterior (2) 2-1-0 to 10-3-8, Corner (3) 10-3-8 to 13-3-8, Exterior (2) 13-3-8 to 21-6-0 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.
 - TCLL: ASCE 7-10; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=15.0 psf (ground snow); Pf=11.5 psf (flat roof snow: Lum DOL=1.15 Plate DOL=1.15); Category II; Exp B; Partially Exp.; Ct=1.10
 - This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 11.5 psf on overhangs non-concurrent with other live loads.
 - Building Designer/Project engineer responsible for verifying Rain Load = 5.0 (psf) covers rain loading requirements specific to the use of this truss component.
 - 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 2-2-0 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 104 lb uplift at joint 25, 73 lb uplift at joint 14, 71 lb uplift at joint 21, 79 lb uplift at joint 22, 62 lb uplift at joint 23, 139 lb uplift at joint 24, 72 lb uplift at joint 19, 82 lb uplift at joint 18, 68 lb uplift at joint 16 and 136 lb uplift at joint 15.
- 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
1) Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (lb/ft)
Vert: 1-2=-43, 2-7=-43, 7-12=-43, 12-13=-43
Trapezoidal Loads (lb/ft)



August 12, 2025

Continued on page 2

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

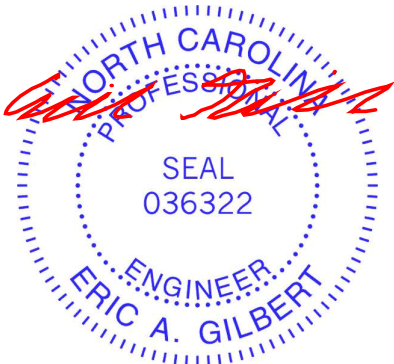
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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	Truss	Truss Type	Qty	Ply	1054 Serenity
2502596-25453	AE01	Common Supported Gable	1	1	I75586055
					Job Reference (optional)

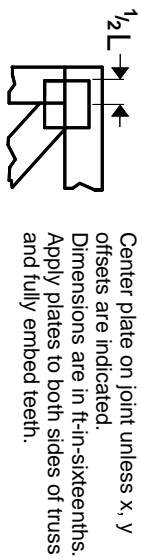
Vert: 25=-20-to-24=-21 (F=-1), 24=-21 (F=-1)-
to-23=-23 (F=-3), 23=-23 (F=-3)-to-22=-24 (F=-4),
22=-24 (F=-4)-to-21=-26 (F=-6), 21=-26 (F=-6)-
to-20=-28 (F=-8), 20=-28 (F=-8)-to-19=-29 (F=-9),
19=-29 (F=-9)-to-18=-31 (F=-11), 18=-31 (F=-11)-
to-17=-32 (F=-12), 17=-32 (F=-12)-to-16=-32
(F=-12), 16=-32 (F=-12)-to-15=-34 (F=-14), 15=-34
(F=-14)-to-14=-35 (F=-15)



August 12,2025

Symbols

PLATE LOCATION AND ORIENTATION



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

PLATE SIZE

4 X 4

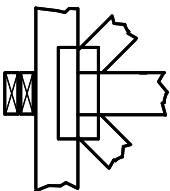
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

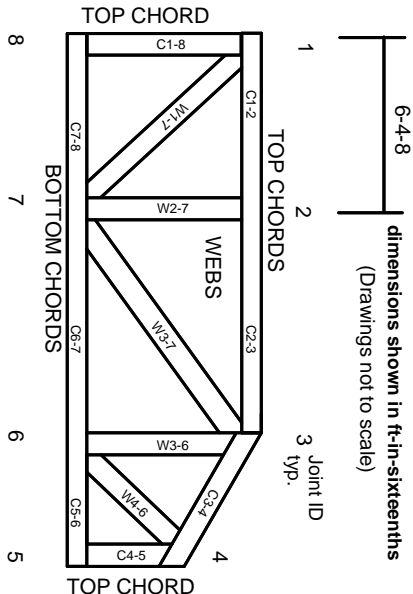


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

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