ENGINEERING BY
TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

RE: 2507-1620-A - Blake Pond Lot 00.0103 OWF Repair

Site Information:

Project Customer: DRB Raleigh Project Name: Blake Pond Lot 00.0103
Lot/Block: Subdivision: Blake Pond
Model:
Address: 44 Frost Meadow Way
City: Lillington State: NC

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

Design Code: IRC2021/TPI2014
Wind Code: ASCE 7-16
Wind Speed: 115 mph
Roof Load: 40.0 psf
Mean Roof Height (feet): 25

Design Program: MiTek 20/20 25.2
Design Method: MWFRS (Envelope)/C-C hybrid Wind ASCE 7-16
Floor Load: N/A psf

Exposure Category: B

No.	Seal#	Truss Name	Date
1	I74649990	1F1GE	7/7/25

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

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.

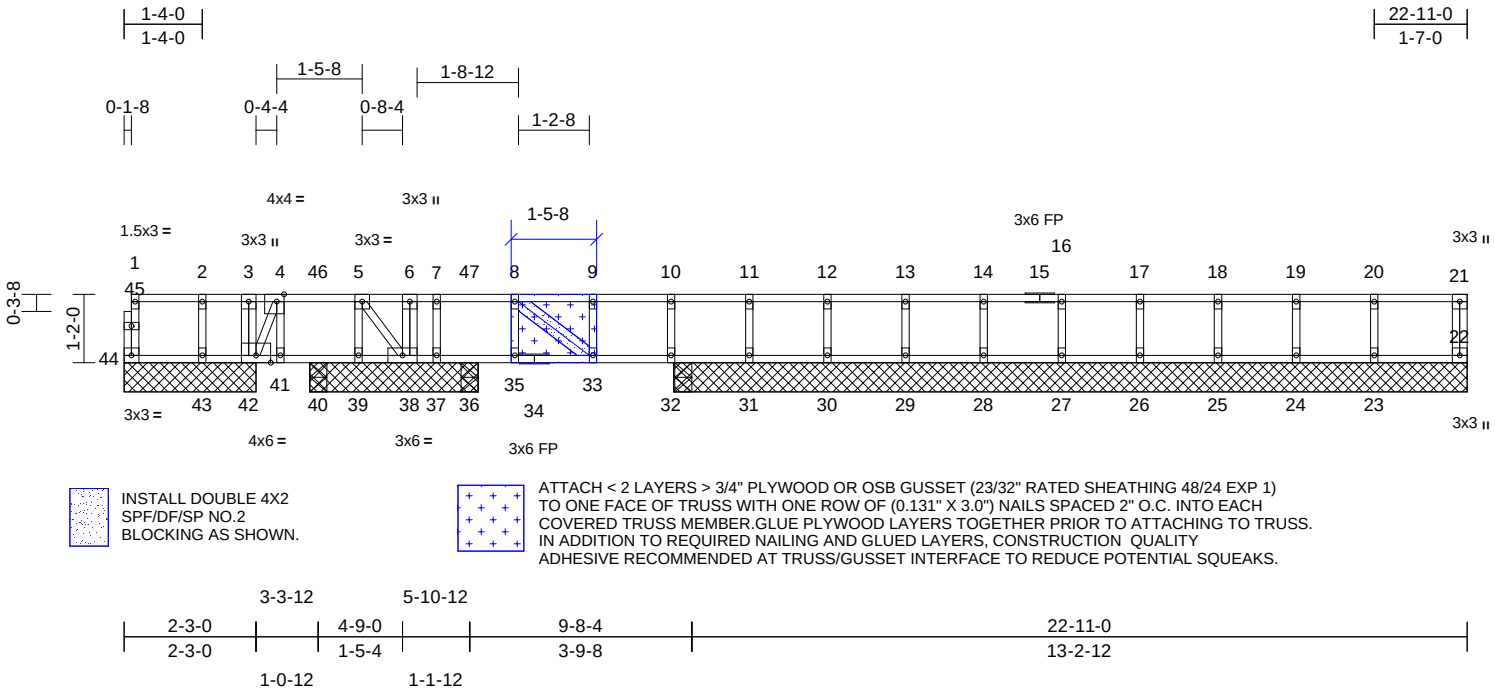
July 7,2025
Gilbert, Eric

Job	Truss	Truss Type	Qty	Ply	Blake Pond Lot 00.0103 OWF Repair
2507-1620-A	1F1GE	Floor Supported Gable	2	1	I74649990 Job Reference (optional)

Structural, LLC, Thurmont, MD - 21788, Run: 25.20 E May 29 2025 Print: 25.2.0 E May 29 2025 MiTek Industries, Inc. Mon Jul 07 09:14:58 Page: 1

ID:6lHRP8?OUYuwudcEP6kAp?zuBH_-TKI9cbWMLcwMCqqAaLw57gGSsutX801I7GvMQgz_VSS

REPAIR:
MODIFY TRUSS BEARING CONDITIONS AS SHOWN



INSTALL DOUBLE 4X2 SPF/DF/SP NO.2 BLOCKING AS SHOWN.

ATTACH < 2 LAYERS > 3/4" PLYWOOD OR OSB GUSSET (23/32" RATED SHEATHING 48/24 EXP 1) TO ONE FACE OF TRUSS WITH ONE ROW OF (0.131" X 3.0") NAILS SPACED 2" O.C. INTO EACH COVERED TRUSS MEMBER.GLUE PLYWOOD LAYERS TOGETHER PRIOR TO ATTACHING TO TRUSS. IN ADDITION TO REQUIRED NAILING AND GLUED LAYERS, CONSTRUCTION QUALITY ADHESIVE RECOMMENDED AT TRUSS/GUSSET INTERFACE TO REDUCE POTENTIAL SQUEAKS.

Scale = 1:39.3

Plate Offsets (X, Y): [4:0-1-8,Edge]

Loading	(psf)	Spacing	1-7-3	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	40.0	Plate Grip DOL	1.00	TC	0.24	Vert(LL)	-0.02	33-35	>999	480	MT20	244/190
TCDL	10.0	Lumber DOL	1.00	BC	0.43	Vert(CT)	-0.03	33-35	>999	360		
BCLL	0.0	Rep Stress Incr	NO	WB	0.06	Horz(CT)	0.00	22	n/a	n/a		
BCDL	5.0	Code	IRC2021/TPI2014	Matrix-S							Weight: 106 lb	FT = 20%F, 12%E

LUMBER
TOP CHORD 2x4 SP No.2(flat)
BOT CHORD 2x4 SP No.2(flat)
WEBS 2x4 SP No.3(flat)
OTHERS 2x4 SP No.3(flat)

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, Except:
6-0-0 oc bracing: 37-38,36-37,35-36,33-35.

REACTIONS (lb/size) 22=51/13-6-8, 23=141/13-6-8, 24=111/13-6-8, 25=119/13-6-8, 26=117/13-6-8, 27=117/13-6-8, 28=118/13-6-8, 29=113/13-6-8, 30=132/13-6-8, 31=61/13-6-8, 32=224/13-6-8, 36=304/0-3-8, 37=-18/2-10-8, 38=150/2-10-8, 39=-34/2-10-8, 40=27/0-3-8, 42=115/2-3-0, 43=99/2-3-0, 44=42/2-3-0
Max Uplift 37=-57 (LC 4), 39=-92 (LC 7)
Max Grav 22=51 (LC 1), 23=141 (LC 4), 24=111 (LC 7), 25=119 (LC 4), 26=117 (LC 7), 27=117 (LC 4), 28=118 (LC 7), 29=113 (LC 4), 30=132 (LC 7), 31=63 (LC 4), 32=225 (LC 7), 36=304 (LC 18), 37=38 (LC 5), 38=162 (LC 6), 39=49 (LC 5), 40=27 (LC 6), 42=115 (LC 1), 43=105 (LC 5), 44=42 (LC 7)

FORCES (lb) - Maximum Compression/Maximum Tension

TOP CHORD 44-45=-38/0, 1-45=-38/0, 21-22=-47/0, 1-2=-2/0, 2-3=-2/0, 3-4=-2/0, 4-46=-29/0, 5-46=-29/0, 5-6=0/92, 6-7=0/92, 7-47=0/92, 8-47=0/92, 8-9=0/0, 9-10=0/0, 10-11=0/0, 11-12=0/0, 12-13=0/0, 13-14=0/0, 14-15=0/0, 15-16=0/0, 16-17=0/0, 17-18=0/0, 18-19=0/0, 19-20=0/0, 20-21=0/0
BOT CHORD 43-44=0/2, 42-43=0/2, 41-42=0/29, 40-41=0/29, 39-40=0/29, 38-39=0/29, 37-38=-92/0, 36-37=-92/0, 35-36=-92/0, 34-35=-92/0, 33-34=-92/0, 32-33=0/0, 31-32=0/0, 30-31=0/0, 29-30=0/0, 28-29=0/0, 27-28=0/0, 26-27=0/0, 25-26=0/0, 24-25=0/0, 23-24=0/0, 22-23=0/0
WEBS 3-42=-45/0, 6-38=-16/98, 2-43=-97/0, 4-41=-25/0, 5-39=-46/84, 7-37=-190/0, 8-35=-151/0, 9-33=-70/0, 10-32=-164/0, 11-31=-79/0, 12-30=-114/0, 13-29=-105/0, 14-28=-107/0, 16-27=-107/0, 17-26=-106/0, 18-25=-108/0, 19-24=-101/0, 20-23=-128/0, 4-42=-62/0, 5-38=-183/0, 8-33=0/116

NOTES
1) Unbalanced floor live loads have been considered for this design.
2) All plates are 1.5x3 (||) MT20 unless otherwise indicated.
3) N/A
4) Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
5) Gable studs spaced at 1-4-0 oc.
6) All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
7) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 92 lb uplift at joint 39 and 57 lb uplift at joint 37.
8) Recommend 2x6 strongbacks, on edge, spaced at 10-00-00 oc and fastened to each truss with 3-10d (0.131" X 3") nails. Strongbacks to be attached to walls at their outer ends or restrained by other means.
9) CAUTION, Do not erect truss backwards.

LOAD CASE(S) Standard

July 7,2025

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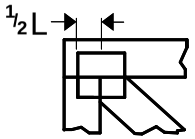
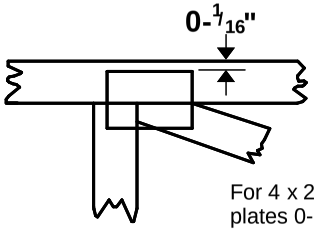
Symbols

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.

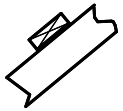
* Plate location details available in MiTek software or upon request.

PLATE SIZE

4 x 4

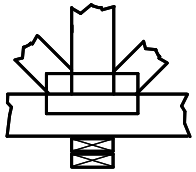
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

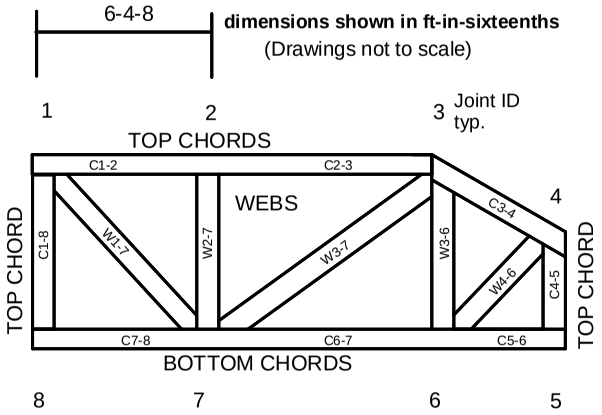


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-22: Design Standard for Bracing.
BCSI: 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/TPI 1 section 6.3 These truss designs rely on lumber values established by others.

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

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/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.