ENGINEERING BY TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

RE: 2503-3844-A - Cambell Ridge Lot 00.0007 OWF Repair

Site Information:

Project Customer: DRB Raleigh Project Name: Cambell Ridge Lot 00.0007
Lot/Block: Subdivision: Cambell Ridge
Model:
Address: 196 Alden Way
City: Angier 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: 50.0 psf
Mean Roof Height (feet): 25

Design Program: MiTek 20/20 8.8
Design Method: MWFRS (Envelope)/C-C hybrid Wind ASCE 7-16
Floor Load: N/A psf

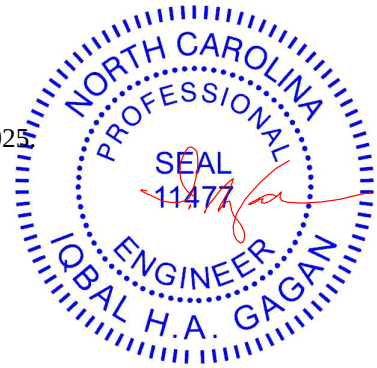
Exposure Category: B

No.	Seal#	Truss Name	Date
1	I72094812	2F14	3/18/25

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

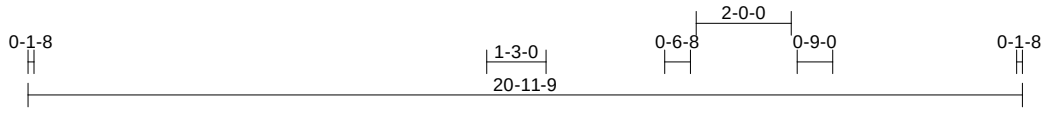
IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which 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.



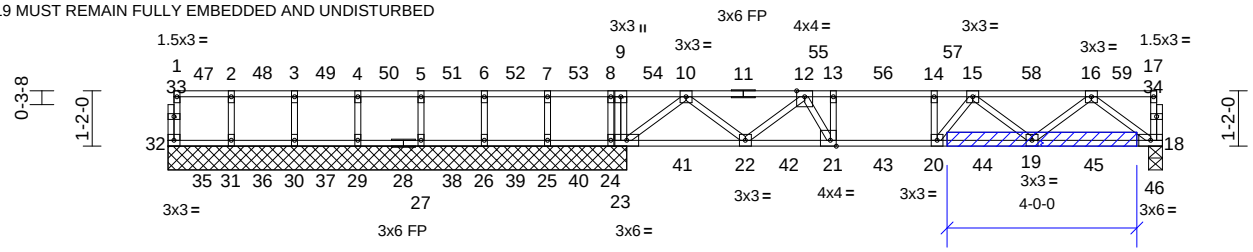
March 18,2025

Gagan, Iqbal

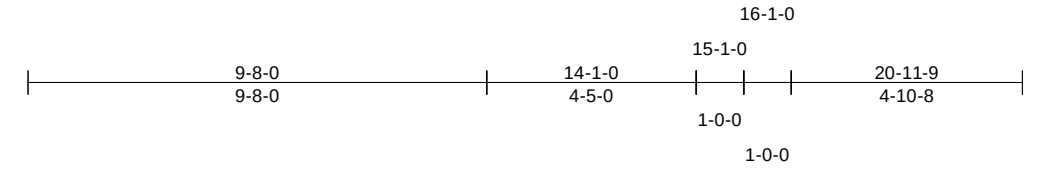
Job	Truss	Truss Type	Qty	Ply	Cambell Ridge Lot 00.0007 OWF Repair
2503-3844-A	2F14	Floor	1	1	I72094812 Job Reference (optional)



REPAIR:
BOTTOM CHORD BROKEN RIGHT OF JOINT 19
PLATES AT JOINT 19 MUST REMAIN FULLY EMBEDDED AND UNDISTURBED



APPLY 2 X 4 X 4' SPF/DF/SP NO.2 SCAB(S) TO EACH FACE OF TRUSS CENTERED ON DAMAGE. ATTACH WITH (1 ROW) OF (0.131"X3") NAILS SPACED 2" ON CENTER IN ALL ALIGNING MEMBERS. USE 2" MEMBER END DISTANCE. IN ADDITION TO REQUIRED NAILING, CONSTRUCTION QUALITY ADHESIVE RECOMMENDED TO REDUCE POTENTIAL SQUEAKS.



Scale = 1:48.6

Plate Offsets (X, Y): [21:0-1-8,Edge]

Loading	(psf)	Spacing	1-4-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	40.0	Plate Grip DOL	1.00	TC	0.63	Vert(LL)	-0.13	21-22	>999	480	MT20	244/190
TCDL	10.0	Lumber DOL	1.00	BC	0.86	Vert(CT)	-0.14	21-22	>989	360		
BCLL	0.0	Rep Stress Incr	NO	WB	0.31	Horz(CT)	0.03	18	n/a	n/a		
BCDL	5.0	Code	IRC2021/TPI2014	Matrix-S							Weight: 99 lb	FT = 20%F, 12%E

LUMBER
TOP CHORD 2x4 SP No.2(flat) *Except* 11-17:2x4 SP SS (flat)
BOT CHORD 2x4 SP No.2(flat)
WEBS 2x4 SP No.3(flat)
OTHERS 2x4 SP No.3(flat)

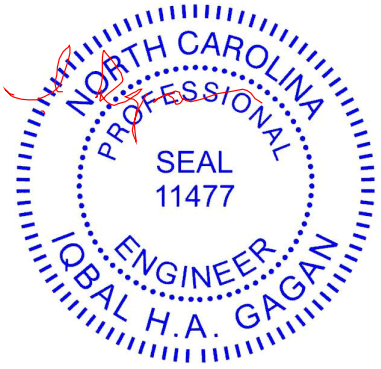
BRACING
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS (size) 18=0-3-8, 23=9-8-0, 24=9-8-0, 25=9-8-0, 26=9-8-0, 27=9-8-0, 29=9-8-0, 30=9-8-0, 31=9-8-0, 32=9-8-0
Max Horiz 32=37 (LC 5)
Max Uplift 18=-212 (LC 8), 23=-56 (LC 60), 24=-565 (LC 62), 25=-6 (LC 58), 26=-6 (LC 57), 27=-6 (LC 56), 29=-6 (LC 55), 30=-9 (LC 54), 31=-3 (LC 56), 32=-14 (LC 23)
Max Grav 18=541 (LC 3), 23=921 (LC 62), 24=332 (LC 8), 25=281 (LC 73), 26=279 (LC 72), 27=280 (LC 71), 29=280 (LC 70), 30=279 (LC 69), 31=281 (LC 68), 32=262 (LC 67)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-32=-259/18, 17-18=-258/35, 1-2=-172/154, 2-3=-372/371, 3-4=-572/571, 4-5=-772/772, 5-6=-972/972, 6-7=-1172/1171, 7-8=-1372/1351, 8-9=-1404/1403, 9-10=-1610/1609, 10-12=-1525/1099, 12-13=-1268/339, 13-14=-1507/657, 14-15=-1589/779, 15-16=-987/346, 16-17=-178/197
BOT CHORD 31-32=-148/148, 30-31=-352/353, 29-30=-557/557, 27-29=-761/762, 26-27=-966/966, 25-26=-1170/1171, 24-25=-1375/1355, 23-24=-1407/1407, 22-23=-1252/1489, 21-22=-782/1538, 20-21=-683/1526, 19-20=-539/1360, 18-19=-285/679
WEBS 9-23=-394/278, 13-21=-582/550, 14-20=-470/450, 10-23=-898/464, 10-22=-352/605, 12-22=-661/448, 12-21=-798/863, 16-18=-851/358, 16-19=-336/593, 15-19=-637/453, 15-20=-748/796, 2-31=-270/12, 3-30=-268/14, 4-29=-269/13, 5-27=-269/14, 6-26=-269/14, 7-25=-269/14, 8-24=-299/250

NOTES
1) Unbalanced floor live loads have been considered for this design.
2) All plates are 1.5x3 (||) MT20 unless otherwise indicated.
3) Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
4) Gable studs spaced at 1-4-0 oc.
5) All bearings are assumed to be SP No.2 .
6) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 565 lb uplift at joint 24.
7) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 32, 23, 18, 31, 30, 29, 27, 26, and 25. This connection is for uplift only and does not consider lateral forces.
8) This truss has been designed for a moving concentrated load of 250.0lb live and 3.0lb dead located at all mid panels and at all panel points along the Top Chord and Bottom Chord, nonconcurrent with any other live loads.
9) This truss has been designed for a total drag load of 150 plf. Lumber DOL=(1.33) Plate grip DOL=(1.33) Connect truss to resist drag loads along bottom chord from 0-0-0 to 20-6-1 for 153.3 plf.
10) 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.
11) CAUTION, Do not erect truss backwards.

LOAD CASE(S) Standard



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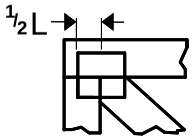
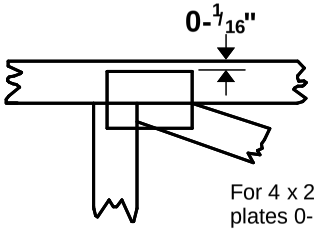
Symbols

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.

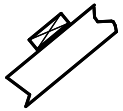
* Plate location details available in MiTek software or upon request.

PLATE SIZE

4 x 4

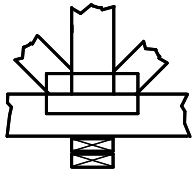
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

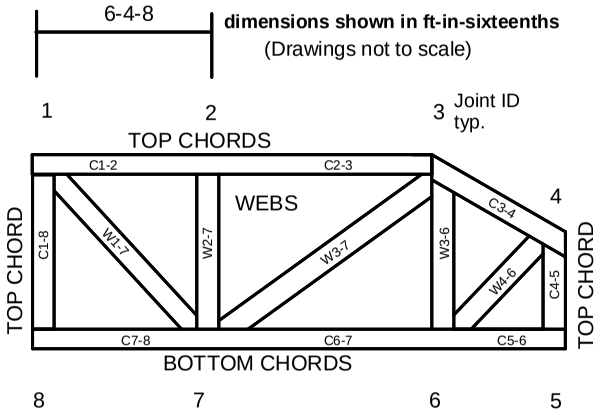


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

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.