ENGINEERING BY TRENCO
A MiTek Affiliate

RE: 2502-2684-A - Campbell Ridge Lot 00.0015 OWF Repair

Site Information:

Project Customer: DRB Raleigh Project Name: Campbell Ridge Lot 00.0015
Lot/Block: Subdivision: Campbell Ridge
Model:
Address: 271 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	I71648066	2F14	2/26/25
2	I71648067	2FGE3	2/26/25
3	I71648068	2FGE5	2/26/25

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.

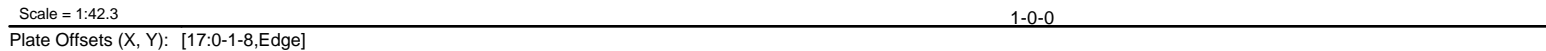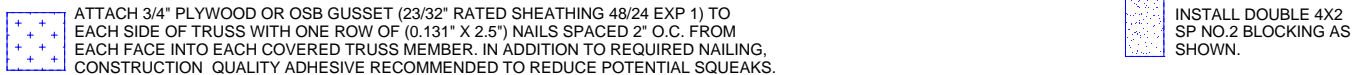Truss Design Engineer's Name: Gilbert, Eric
My license renewal date for the state of North Carolina is December 31, 2025.

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.
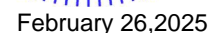
February 26, 2025

Gilbert, Eric

Structural, LLC, Thurmont, MD - 21788,

Run: 8.83 E Feb 1 2025 Print: 8.830 E Feb 1 2025 MiTek Industries, Inc. Wed Feb 26 08:42:30   Page: 1
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REPAIR:
SHIFT LEFT END BEARING IN 0-6-0

ATTACH 3/4" PLYWOOD OR OSB GUSSET (23/32" RATED SHEATHING 48/24 EXP 1) TO EACH SIDE OF TRUSS WITH ONE ROW OF (0.131" X 2.5") NAILS SPACED 2" O.C. FROM EACH FACE INTO EACH COVERED TRUSS MEMBER. IN ADDITION TO REQUIRED NAILING, CONSTRUCTION QUALITY ADHESIVE RECOMMENDED TO REDUCE POTENTIAL SQUEAKS.

INSTALL DOUBLE 4X2 SP NO.2 BLOCKING AS SHOWN.

Scale = 1:42.3

Plate Offsets (X, Y): [17:0-1-8,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	0.57	Vert(LL)	-0.29	18-19	>744	480	MT20	244/190
TCDL	10.0	Lumber DOL	1.00	BC	0.91	Vert(CT)	-0.41	18-19	>541	360	MT20HS	187/143
BCLL	0.0	Rep Stress Incr	YES	WB	0.68	Horz(CT)	0.05	15	n/a	n/a		
BCDL	5.0	Code	IRC2021/TPI2014	Matrix-S							Weight: 100 lb	FT = 20%F, 12%E

LUMBER
TOP CHORD 2x4 SP SS(flat) *Except* 12-14:2x4 SP No.2 (flat)
BOT CHORD 2x4 SP No.2(flat) *Except* 22-15:2x4 SP SS (flat)
WEBS 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.

REACTIONS (lb/size) 15=669/ Mechanical, 25=707/0-3-8
Max Grav 15=670 (LC 4), 25=707 (LC 1)

FORCES (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 14-15=-258/22, 2-37=0/280, 3-37=0/280, 3-38=-1177/0, 4-38=-1177/0, 4-39=-2232/0, 5-39=-2232/0, 5-40=-2232/0, 6-40=-2232/0, 6-41=-2779/0, 7-41=-2779/0, 7-42=-2922/0, 8-42=-2922/0, 8-43=-2426/0, 9-43=-2426/0, 9-44=-2426/0, 10-44=-2426/0, 10-11=-2426/0, 11-12=-1395/0, 12-13=-1395/0
BOT CHORD 25-28=0/550, 24-28=0/550, 24-29=0/1786, 23-29=0/1786, 23-30=0/2602, 22-30=0/2602, 21-22=0/2602, 21-31=0/2936, 20-31=0/2936, 20-32=0/2936, 19-32=0/2936, 19-33=0/2764, 18-33=0/2764, 18-34=0/2426, 17-34=0/2426, 17-35=0/2042, 16-35=0/2042, 16-36=0/830, 15-36=0/830
WEBS 9-18=-22/473, 10-17=-709/104, 3-27=-1056/0, 3-24=0/816, 4-24=-794/0, 4-23=0/570, 5-23=-254/69, 6-23=-473/4, 6-21=-58/308, 7-21=-276/204, 7-19=-186/274, 8-19=-83/331, 8-18=-719/0, 13-15=-1041/0, 13-16=0/736, 11-16=-841/0, 11-17=-75/1018, 25-27=-691/0, 2-27=-294/143

NOTES
1) Unbalanced floor live loads have been considered for this design.
2) All plates are MT20 plates unless otherwise indicated.
3) Refer to girder(s) for truss to truss connections.
4) N/A
5) 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.
6) 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.

LOAD CASE(S) Standard

North Carolina Professional Engineer SEAL 036322 Eric A. Gilbert

February 26,2025

ENGINEERING BY
TRENCO
A MiTek Affiliate
818 Soundside Road
Edenton, NC 27932

Structural, LLC, Thurmont, MD - 21788,

Run: 8.83 S Feb 18 2025 Print: 8.830 S Feb 18 2025 MiTek Industries, Inc. Tue Feb 25 18:44:57   Page: 1
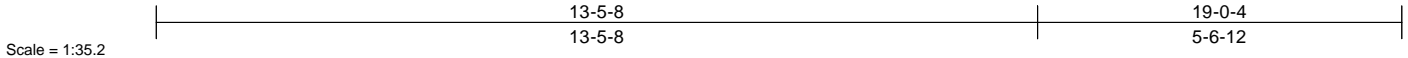ID:mfK5tYLFGZ8SFrylek82Xly9neJ-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

REPAR:
STUB LEFT END 0-6-0

LUMBER AND CONNECTOR PLATES (SHOWN DASHED) TO BE
CUT CLEANLY AND ACCURATELY AND THE REMAINING PLATE(S)
MUST BE FULLY EMBEDDED AND UNDISTURBED.

ATTACH 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 2.5") NAILS SPACED 2" O.C. INTO EACH
COVERED TRUSS MEMBER. IN ADDITION TO REQUIRED NAILING, CONSTRUCTION QUALITY
ADHESIVE RECOMMENDED TO REDUCE POTENTIAL SQUEAKS.

INSTALL DOUBLE 4X2
SP NO.2 BLOCKING AS
SHOWN.

Scale = 1:34.7

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	0.27	Vert(LL)	n/a	-	n/a	999	MT20	244/190
TCDL	10.0	Lumber DOL	1.00	BC	0.28	Vert(TL)	n/a	-	n/a	999		
BCLL	0.0	Rep Stress Incr	YES	WB	0.05	Horiz(TL)	0.00	17	n/a	n/a		
BCDL	5.0	Code	IRC2021/TPI2014	Matrix-R							Weight: 79 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 6-0-0 oc
             bracing.
REACTIONS (size) 17=18-8-8, 18=18-8-8, 19=18-8-8,
             20=18-8-8, 21=18-8-8, 22=18-8-8,
             23=18-8-8, 24=18-8-8, 25=18-8-8,
             26=18-8-8, 27=18-8-8, 29=18-8-8,
             30=18-8-8, 31=18-8-8, 32=18-8-8
Max Uplift   17=-15 (LC 44), 18=-6 (LC 43),
             19=-6 (LC 42), 20=-6 (LC 41),
             21=-6 (LC 40), 22=-6 (LC 39),
             23=-6 (LC 38), 24=-6 (LC 40),
             25=-6 (LC 39), 26=-7 (LC 35),
             27=-6 (LC 37), 29=-6 (LC 36),
             30=-5 (LC 7), 31=-7 (LC 34),
             32=-16 (LC 33)
Max Grav   17=265 (LC 60), 18=280 (LC 59),
             19=280 (LC 58), 20=280 (LC 57),
             21=280 (LC 56), 22=280 (LC 55),
             23=280 (LC 54), 24=280 (LC 53),
             25=280 (LC 52), 26=280 (LC 51),
             27=280 (LC 50), 29=280 (LC 49),
             30=280 (LC 48), 31=279 (LC 47),
             32=264 (LC 46)

FORCES (lb) - Maximum Compression/Maximum
             Tension
TOP CHORD   1-32=-260/22, 16-17=-260/21, 1-2=-22/4,
             2-3=-22/4, 3-4=-22/4, 4-5=-22/4, 5-6=-22/4,
             6-7=-22/4, 7-8=-22/4, 8-9=-22/4, 9-10=-22/4,
             10-11=-22/4, 11-13=-22/4, 13-14=-22/4,
             14-15=-22/4, 15-16=-22/4

BOT CHORD   31-32=-4/22, 30-31=-4/22, 29-30=-4/22,
             27-29=-4/22, 26-27=-4/22, 25-26=-4/22,
             24-25=-4/22, 23-24=-4/22, 22-23=-4/22,
             21-22=-4/22, 20-21=-4/22, 19-20=-4/22,
             18-19=-4/22, 17-18=4/22
WEBS   2-31=-268/16, 3-30=-269/14, 4-29=-269/14,
             5-27=-269/14, 6-26=-269/14, 7-25=-269/14,
             8-24=-269/14, 9-23=-269/14, 10-22=-269/14,
             11-21=-269/14, 13-20=-269/14,
             14-19=-269/14, 15-18=-268/15

NOTES
1) All plates are 1.5x3 (||) MT20 unless otherwise
   indicated.
2) Gable requires continuous bottom chord bearing.
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 16 lb uplift at joint
   32, 15 lb uplift at joint 17, 7 lb uplift at joint 31, 5 lb uplift
   at joint 30, 6 lb uplift at joint 29, 6 lb uplift at joint 27, 7 lb
   uplift at joint 26, 6 lb uplift at joint 25, 6 lb uplift at joint
   24, 6 lb uplift at joint 23, 6 lb uplift at joint 22, 6 lb uplift at
   joint 21, 6 lb uplift at joint 20, 6 lb uplift at joint 19 and 6
   lb uplift at joint 18.
7) 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.
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.
LOAD CASE(S) Standard

NORTH CAROLINA
PROFESSIONAL
SEAL
036322
ENGINEER
ERIC A. GILBERT

February 26,2025

ENGINEERING BY
TRENCO
A MiTek Affiliate

818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Campbell Ridge Lot 00.0015 OWF Repair	
2502-2684-A	2FGE5	Floor Supported Gable	1	1	Job Reference (optional)	I71648068

REPAIR:
SHIFT CONTINOUS BEARING ON LEFT END FOR 0-6-0 CANTILEVER
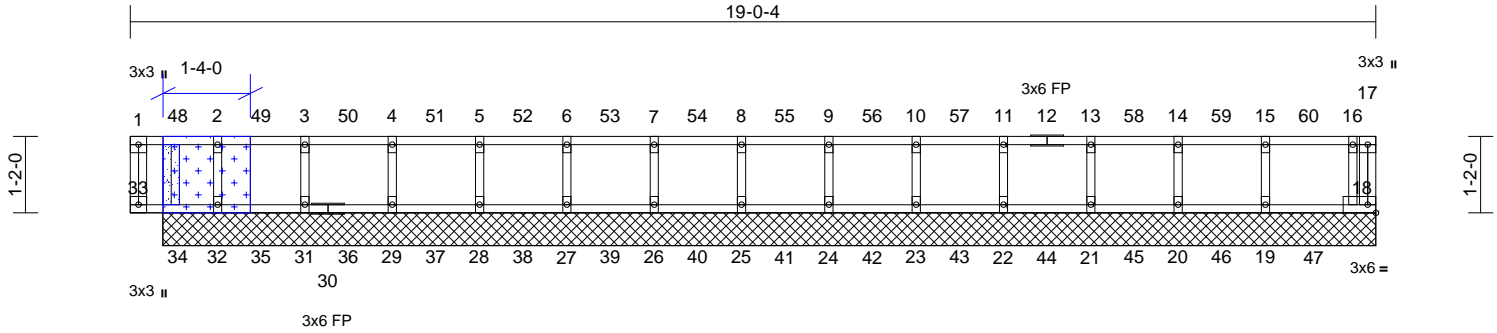
ATTACH 3/4" PLYWOOD OR OSB GUSSET (23/32" RATED SHEATHING 48/24 EXP 1) TO ONE FACE OF TRUSS WITH ONE ROW OF (0.131" X 2.5") NAILS SPACED 2" O.C. INTO EACH COVERED TRUSS MEMBER. IN ADDITION TO REQUIRED NAILING, CONSTRUCTION QUALITY ADHESIVE RECOMMENDED TO REDUCE POTENTIAL SQUEAKS.

INSTALL DOUBLE 4X2 SP NO.2 BLOCKING AS SHOWN.

Scale = 1:35.2

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	0.32	Vert(LL)	n/a	-	n/a	999	MT20	244/190
TCDL	10.0	Lumber DOL	1.00	BC	0.34	Vert(TL)	n/a	-	n/a	999		
BCLL	0.0	Rep Stress Incr	NO	WB	0.05	Horiz(TL)	0.00	18	n/a	n/a		
BCDL	5.0	Code	IRC2021/TPI2014	Matrix-R							Weight: 81 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.
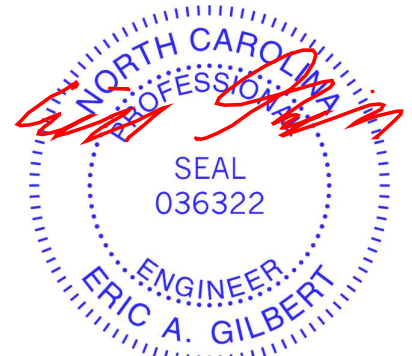BOT CHORD   Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS (size)   18=19-0-4, 19=19-0-4, 20=19-0-4, 21=19-0-4, 22=19-0-4, 23=19-0-4, 24=19-0-4, 25=19-0-4, 26=19-0-4, 27=19-0-4, 28=19-0-4, 29=19-0-4, 31=19-0-4, 32=19-0-4, 33=19-0-4
Max Uplift   18=-6 (LC 16), 19=-1 (LC 46), 20=-13 (LC 48), 21=-6 (LC 47), 22=-6 (LC 46), 23=-6 (LC 45), 24=-6 (LC 44), 25=-6 (LC 43), 26=-6 (LC 42), 27=-6 (LC 41), 28=-6 (LC 40), 29=-6 (LC 39), 31=-5 (LC 38), 32=-11 (LC 17), 33=-15 (LC 36)
Max Grav   18=268 (LC 63), 19=282 (LC 62), 20=279 (LC 61), 21=280 (LC 60), 22=280 (LC 59), 23=280 (LC 58), 24=280 (LC 57), 25=280 (LC 56), 26=280 (LC 55), 27=280 (LC 54), 28=280 (LC 53), 29=280 (LC 52), 31=280 (LC 51), 32=278 (LC 50), 33=265 (LC 49)

FORCES   (lb) - Maximum Compression/Maximum Tension
TOP CHORD   1-33=-261/22, 17-18=-82/95, 1-2=-30/4, 2-3=-30/4, 3-4=-30/4, 4-5=-30/4, 5-6=-30/4, 6-7=-30/4, 7-8=-30/4, 8-9=-30/4, 9-10=-30/4, 10-11=-30/4, 11-13=-30/4, 13-14=-30/4, 14-15=-30/4, 15-16=-30/4, 16-17=-38/7

BOT CHORD   32-33=-4/30, 31-32=-4/30, 29-31=-4/30, 28-29=-4/30, 27-28=-4/30, 26-27=-4/30, 25-26=-4/30, 24-25=-4/30, 23-24=-4/30, 22-23=-4/30, 21-22=-4/30, 20-21=-4/30, 19-20=-4/30, 18-19=4/30
WEBS   2-32=-267/16, 3-31=-269/13, 4-29=-269/14, 5-28=-269/14, 6-27=-269/14, 7-26=-269/14, 8-25=-269/14, 9-24=-269/14, 10-23=-269/14, 11-22=-269/14, 13-21=-269/14, 14-20=-268/16, 15-19=-270/12, 16-18=-232/88

NOTES
1) All plates are 1.5x3 (|||) MT20 unless otherwise indicated.
2) Gable requires continuous bottom chord bearing.
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 15 lb uplift at joint 33, 6 lb uplift at joint 18, 11 lb uplift at joint 32, 5 lb uplift at joint 31, 6 lb uplift at joint 29, 6 lb uplift at joint 28, 6 lb uplift at joint 27, 6 lb uplift at joint 26, 6 lb uplift at joint 25, 6 lb uplift at joint 24, 6 lb uplift at joint 23, 6 lb uplift at joint 22, 6 lb uplift at joint 21, 13 lb uplift at joint 20 and 1 lb uplift at joint 19.
7) 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.
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.
LOAD CASE(S)   Standard

February 26,2025

Symbols

PLATE LOCATION AND ORIENTATION

½ L

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.

0-1/16"

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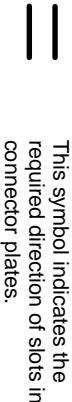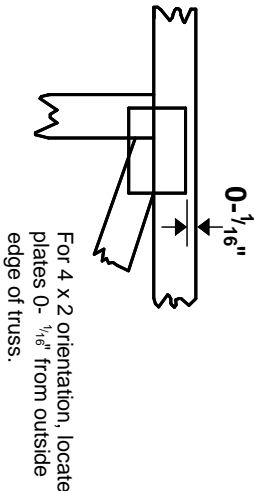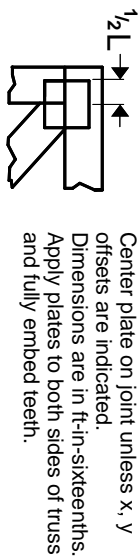
* Plate location details available in MiTek software or upon request.
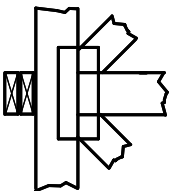
PLATE SIZE

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.
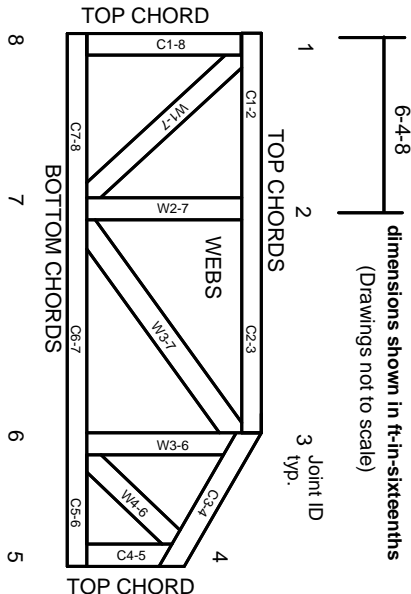
BEARING

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

6-4-8 **dimensions shown in ft-in-sixteenths**
(Drawings not to scale)

1   2   3 Joint ID
        TOP CHORDS   typ.

TOP CHORD
C1-8
C1-2
C7-8   W1-7
W2-7
BOTTOM CHORDS   WEBS
C6-7   C2-3
W3-7
8   7   6   5
W3-6
C5-6   W4-6   C3-4
C4-5
TOP CHORD

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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⚠ 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 T or 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.