ENGINEERING BY TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

RE: 2505-6760-A - Campbell Ridge Lot 00.0016 Roof Repair

Site Information:

Project Customer: DRB Raleigh Project Name: Campbell Ridge Lot 00.0016
Lot/Block: Subdivision: Campbell Ridge
Model:
Address: 253 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: 120 mph
Roof Load: 40.0 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	I73328003	B2A	5/13/25
2	I73328004	B2B	5/13/25

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.

May 13,2025

Gilbert, Eric

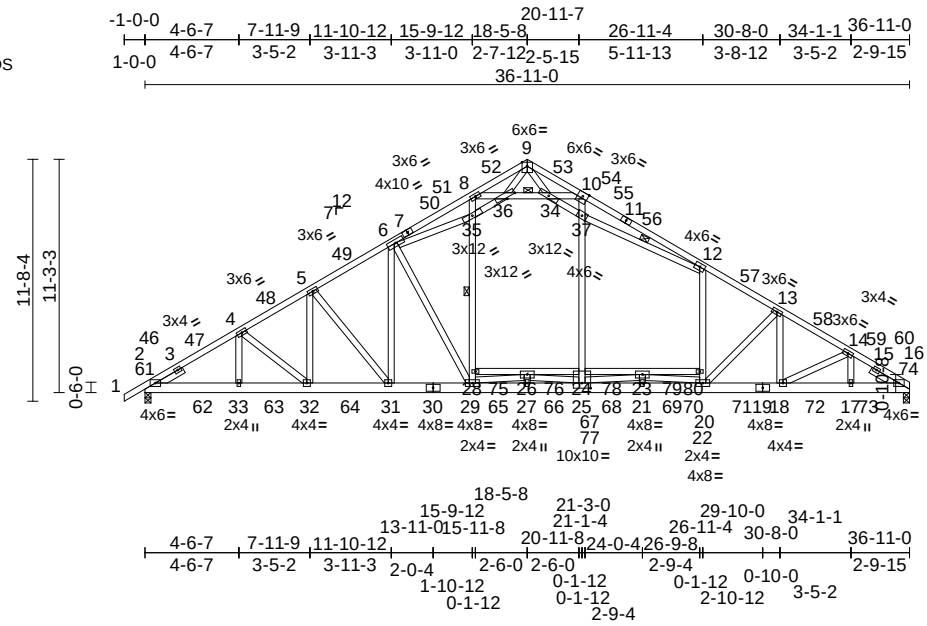
Job	Truss	Truss Type	Qty	Ply	Campbell Ridge Lot 00.0016 Roof Repair
2505-6760-A	B2A	Attic	2	1	I73328003 Job Reference (optional)

Structural, LLC, Thurmont, MD - 21788, Run: 8.83 E Feb 1 2025 Print: 8.830 E Feb 1 2025 MiTek Industries, Inc. Mon May 12 15:17:31 Page: 1

ID:9SZuewPBURgzTOunSAMl5zUQdD-yo8Ul2okaYoTtlkyB41ewOxeHGGdCZepR30OufzHCUY

REPAIR:
TRUSS INSTALLED BACKWARDS

NO REPAIR REQUIRED



Scale = 1:111.3

Plate Offsets (X, Y): [25:0-5-0,0-3-0], [36:0-5-10,0-0-11], [37:0-3-0,0-1-12]

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	0.74	Vert(LL)	-0.25	20	>999	360	MT20	244/190
Snow (Pf/Pg)	15.4/20.0	Lumber DOL	1.15	BC	0.59	Vert(CT)	-0.63	20	>698	240		
TCDL	10.0	Rep Stress Incr	YES	WB	0.97	Horz(CT)	0.06	16	n/a	n/a		
BCLL	0.0*	Code	IRC2021/TPI2014	Matrix-AS		Wind(LL)	0.16	20	>999	240		
BCDL	10.0										Weight: 322 lb	FT = 20%

LUMBER

TOP CHORD 2x4 SP No.2
BOT CHORD 2x6 SP No.2 *Except* 28-24,24-22:2x4 SP No.2, 30-19:2x6 SP DSS
WEBS 2x4 SP No.3 *Except* 8-29,12-20,8-10,10-25:2x4 SP No.2
SLIDER Left 2x4 SP No.3 -- 1-6-0, Right 2x4 SP No.3 -- 1-6-0

BRACING

TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied.
WEBS 1 Row at midpt 8-28, 8-10, 12-37

REACTIONS (lb/size) 2=1617/0-3-8, 16=1668/0-3-8
Max Horiz 2=178 (LC 15)
Max Grav 2=1824 (LC 35), 16=1872 (LC 36)

FORCES (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.

TOP CHORD 2-46=-2246/0, 2-46=-2224/0, 2-3=-1881/0, 3-47=-3239/0, 4-47=-3189/0, 4-48=-3138/0, 5-48=-3104/0, 5-49=-2874/0, 6-49=-2823/0, 6-7=-894/455, 7-50=-847/474, 50-51=-837/480, 8-51=-805/490, 8-52=0/1981, 9-52=0/2002, 9-53=0/1282, 10-53=0/1220, 10-54=-1538/0, 54-55=-1563/0, 11-55=-1575/0, 11-56=-1597/0, 12-56=-1656/0, 12-57=-3003/0, 13-57=-3059/0, 13-58=-3459/0, 14-58=-3494/0, 14-59=-3340/0, 15-59=-3349/0, 15-16=-2047/0, 16-60=-2281/0, 16-60=-2300/0

BOT CHORD 2-61=0/2728, 2-61=0/2728, 2-62=0/2728, 33-62=0/2728, 33-63=0/2728, 32-63=0/2728, 32-64=0/2646, 31-64=0/2646, 30-31=0/2365, 29-30=0/2365, 29-65=0/1536, 27-65=0/1536, 27-66=0/1536, 25-66=0/1536, 25-67=0/2447, 67-68=0/2447, 21-68=0/2447, 21-69=0/2447, 69-70=0/2447, 20-70=0/2447, 20-71=0/2971, 19-71=0/2971, 18-19=0/2971, 18-72=0/2814, 17-72=0/2814, 17-73=0/2814, 16-73=0/2814, 16-74=0/2814, 16-74=0/2814, 26-76=-1/1032, 24-76=-1/1032, 24-77=0/1242, 77-78=0/1242, 23-78=0/1242, 23-79=-373/0, 79-80=-373/0, 22-80=-373/0

WEBS 28-29=-81/344, 28-35=-76/435, 8-35=0/1072, 8-36=-2032/0, 34-36=-3339/0, 10-34=-2866/0, 35-36=-2742/0, 24-25=0/884, 24-37=0/1078, 10-37=0/1128, 13-18=0/577, 13-20=-668/1, 5-32=0/382, 6-31=-54/356, 5-31=-440/41, 6-29=-211/435, 34-37=-951/33, 6-35=-2268/0, 9-36=-1619/0, 9-34=-562/47, 12-37=-1284/0, 26-27=-486/0, 25-26=-178/272, 26-29=0/946, 21-23=0/415, 23-25=-1343/0, 20-23=-225/377

NOTES

1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) and C-C Exterior(2E) -1-0-0 to 2-8-5, Interior (1) 2-8-5 to 18-5-8, Exterior(2R) 18-5-8 to 22-1-13, Interior (1) 22-1-13 to 36-9-4 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) TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=20.0 psf; Pf=15.4 psf (Lum DOL = 1.15 Plate DOL = 1.15); Is=1.0; Rough Cat B; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 12.0 psf or 2.00 times flat roof load of 15.4 psf on overhangs non-concurrent with other live loads.
6) 250.0lb AC unit load placed on the bottom chord, 24-0-0 from left end, supported at two points, 5-0-0 apart.
7) Plates checked for a plus or minus 5 degree rotation about its center.
8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
9) * 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.
10) Ceiling dead load (10.0 psf) on member(s). 8-36, 34-36, 10-34

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11) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 26-28, 24-26
12) 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.
13) This truss design requires that a minimum of 7/16" structural wood sheathing be applied directly to the top chord and 1/2" gypsum sheetrock be applied directly to the bottom chord.
14) Attic room checked for L/360 deflection.

LOAD CASE(S) Standard

May 13,2025

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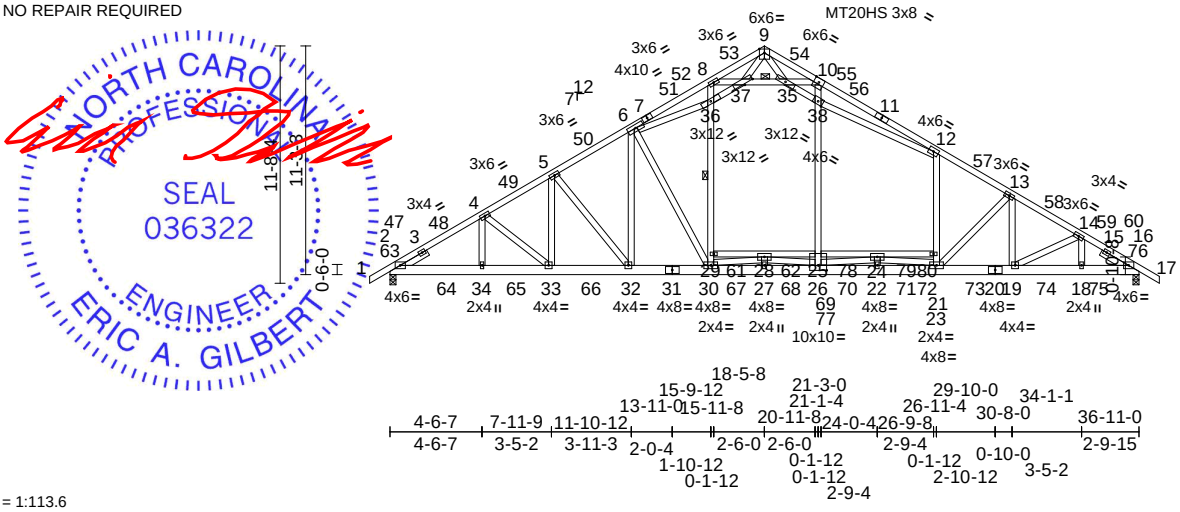
Job	Truss	Truss Type	Qty	Ply	Campbell Ridge Lot 00.0016 Roof Repair
2505-6760-A	B2B	Attic	4	1	I73328004 Job Reference (optional)

Structural, LLC, Thurmont, MD - 21788, Run: 8.83 S Apr 24 2025 Print: 8.830 S Apr 24 2025 MiTek Industries, Inc. Wed May 07 18:45:08 Page: 1
ID:iNEWOORNH9uHlITvCeIzaQzUQje-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

REPAIR:
TRUSS INSTALLED BACKWARDS

NO REPAIR REQUIRED



Scale = 1:113.6

Plate Offsets (X, Y): [26:0-5-0,0-3-0], [37:0-5-10,0-0-11], [38:0-3-0,0-1-12]

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	0.75	Vert(LL)	-0.25	21	>999	360	MT20	244/190
Snow (Pf/Pg)	15.4/20.0	Lumber DOL	1.15	BC	0.59	Vert(CT)	-0.63	21	>702	240	MT20HS	187/143
TCDL	10.0	Rep Stress Incr	YES	WB	1.00	Horz(CT)	0.06	16	n/a	n/a		
BCLL	0.0*	Code	IRC2021/TPI2014	Matrix-AS		Wind(LL)	0.16	21	>999	240		
BCDL	10.0										Weight: 323 lb	FT = 20%

LUMBER
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2 *Except* 16-20,31-2:2x6 SP No.2, 31-20:2x6 SP DSS
WEBS 2x4 SP No.3 *Except* 8-30,12-21,8-10,10-26:2x4 SP No.2
SLIDER Left 2x4 SP No.3 -- 1-6-0, Right 2x4 SP No.3 -- 1-6-0

BRACING
TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied.
WEBS 1 Row at midpt 8-29, 8-10

REACTIONS (size) 2=0-3-8, 16=0-3-8
Max Horiz 2=182 (LC 15)
Max Grav 2=1823 (LC 35), 16=1935 (LC 36)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/47, 2-4=-3237/0, 4-5=-3136/0, 5-6=-2872/0, 6-8=-896/484, 8-9=0/1993, 9-10=0/1279, 10-12=-1656/0, 12-13=-3055/0, 13-14=-3486/0, 14-16=-3329/0, 16-17=0/47
BOT CHORD 28-29=0/228, 25-28=0/1029, 2-34=0/2728, 33-34=0/2728, 32-33=0/2649, 30-32=0/2369, 27-30=0/1542, 26-27=0/1542, 22-26=0/2450, 21-22=0/2450, 19-21=0/2971, 18-19=0/2805, 16-18=0/2805, 24-25=0/1238, 23-24=-371/0
WEBS 29-30=-81/345, 29-36=-76/435, 8-36=0/1070, 21-23=-174/110, 12-23=-94/155, 8-37=-2031/0, 35-37=-3334/0, 10-35=-2862/0, 36-37=-2731/0, 25-26=0/882, 25-38=0/1077, 10-38=0/1126, 13-19=0/575, 13-21=-661/0, 4-34=-42/232, 5-33=0/382, 4-33=-232/64, 6-32=-54/357, 5-32=-439/41, 6-30=-212/432, 35-38=-949/34, 14-18=-195/124, 14-19=-60/239, 6-36=-2259/0, 9-37=-1612/0, 9-35=-561/48, 12-38=-1281/0, 27-28=-486/0, 26-28=-178/272, 28-30=0/941, 22-24=0/414, 24-26=-1341/0, 21-24=-226/377

NOTES
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) and C-C Exterior(2E) -1-0-0 to 2-8-5, Interior (1) 2-8-5 to 18-5-8, Exterior(2R) 18-5-8 to 22-1-13, Interior (1) 22-1-13 to 37-11-0 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
3) TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pg=20.0 psf; Pf=15.4 psf (Lum DOL = 1.15 Plate DOL = 1.15); Is=1.0; Rough Cat B; Partially Exp.; Ce=1.0; Cs=1.00; Ct=1.10
4) Unbalanced snow loads have been considered for this design.
5) This truss has been designed for greater of min roof live load of 12.0 psf or 2.00 times flat roof load of 15.4 psf on overhangs non-concurrent with other live loads.
6) 250.0lb AC unit load placed on the bottom chord, 24-0-0 from left end, supported at two points, 5-0-0 apart.
7) All plates are MT20 plates unless otherwise indicated.
8) Plates checked for a plus or minus 5 degree rotation about its center.
9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
10) * 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.
11) Ceiling dead load (10.0 psf) on member(s). 8-37, 35-37, 10-35
12) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 28-29, 25-28
13) 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.
14) This truss design requires that a minimum of 7/16" structural wood sheathing be applied directly to the top chord and 1/2" gypsum sheetrock be applied directly to the bottom chord.
15) Attic room checked for L/360 deflection.

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Continued on page 2

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Job	Truss	Truss Type	Qty	Ply	Campbell Ridge Lot 00.0016 Roof Repair
2505-6760-A	B2B	Attic	4	1	I73328004 Job Reference (optional)

LOAD CASE(S) Standard

May 13,2025

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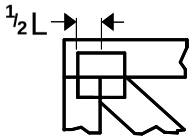
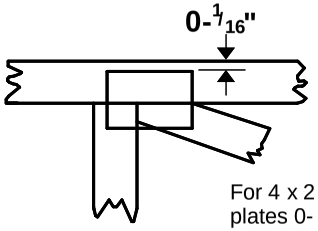
Edenton, NC 27932

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.

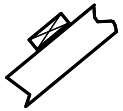
* Plate location details available in MiTek software or upon request.

PLATE SIZE

4 x 4

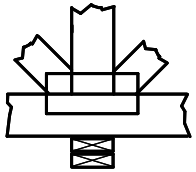
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

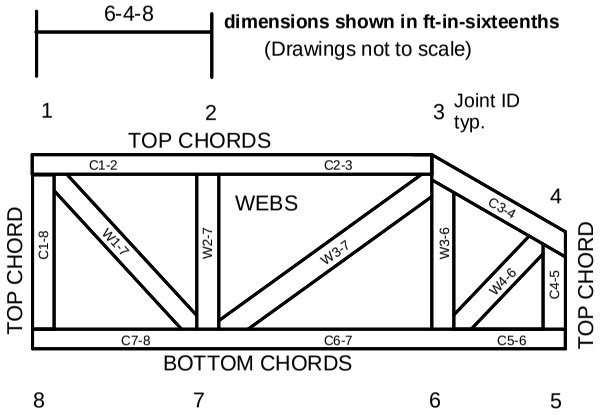


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

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.

MiTek®

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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.