

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: ACL
GREAT SOUTHERN HOMES/ARIEL-II

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by Builders FirstSource (Apex,NC).

Pages or sheets covered by this seal: I66948258 thru I66948258

My license renewal date for the state of North Carolina is December 31, 2024.

North Carolina COA: C-0844



July 19,2024

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.

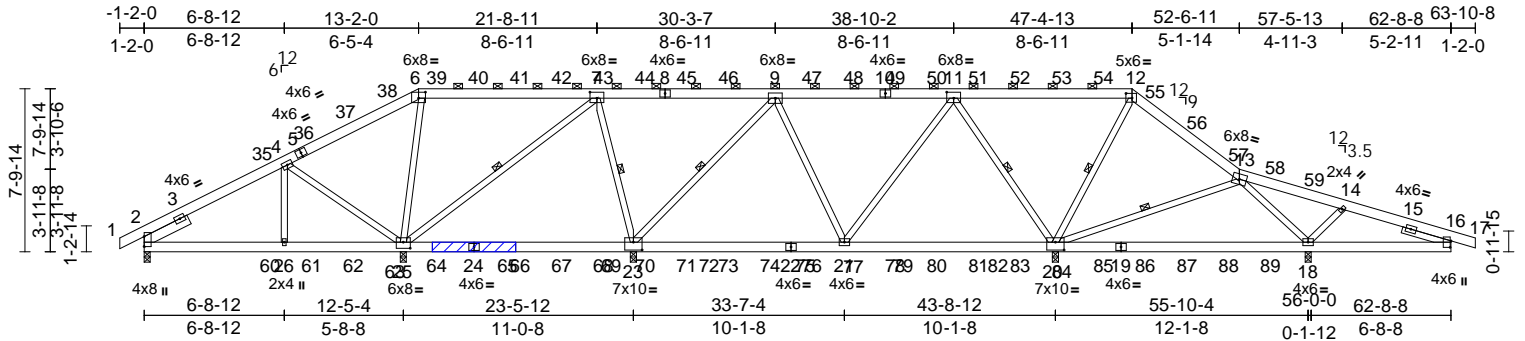
Job ACL	Truss A10-1PL	Truss Type Hip Girder	Qty 1	Ply 1	GREAT SOUTHERN HOMES/ARIEL-II Job Reference (optional)	166948258
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Builders FirstSource (Apex, NC), Apex, NC - 27523,

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DAMAGED PLATE AT JOINT 24



APPLY 2 X 6 X 4" SPF/DF/SP NO.2 SCAB TO ONE FACE OF TRUSS CENTERED ON SPLICE. ATTACH WITH (0.131" X 3") NAILS PER THE FOLLOWING NAIL SCHEDULE: 3 ROWS: SPACED @ 2" O.C. USE 2" MEMBER END DISTANCE.

Scale = 1:110.6

Plate Offsets (X, Y): [6:0-4-0,0-3-8], [7:0-4-0,0-3-8], [11:0-4-0,0-3-8], [12:0-3-8,0-2-12], [16:0-3-12,0-0-8], [20:0-5-0,0-4-8], [23:0-5-0,0-4-8], [25:0-4-0,0-3-8]

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	0.95	Vert(LL)	-0.20	18-20	>728	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	1.00	Vert(CT)	-0.45	18-20	>327	240		
BCLL	0.0*	Rep Stress Incr	NO	WB	0.92	Horz(CT)	0.02	18	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS		Wind(LL)	0.25	18-20	>590	240	Weight: 457 lb	FT = 20%

LUMBER
TOP CHORD 2x6 SP No.2
BOT CHORD 2x6 SP No.2
WEBS 2x4 SP No.3
SLIDER Left 2x6 SP No.2 -- 2-5-0, Right 2x4 SP No.3 -- 2-5-0

BRACING
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins, except 2-0-0 oc purlins (6-0-0 max.): 6-12.
BOT CHORD Rigid ceiling directly applied.
WEBS 1 Row at midpt 7-23, 9-23, 11-20, 12-20, 13-20, 7-25

REACTIONS All bearings 0-3-8. except 23=0-3-9, 20=0-3-9 (input: 0-3-9)
(lb) - Max Horiz 2=124 (LC 12)
Max Uplift All uplift 100 (lb) or less at joint(s) except 2=129 (LC 8), 18=606 (LC 5), 20=1923 (LC 4), 23=1892 (LC 5), 25=1134 (LC 8)
Max Grav All reactions 250 (lb) or less at joint (s) except 2=586 (LC 19), 18=1632 (LC 1), 20=3023 (LC 16), 23=2959 (LC 18), 25=1978 (LC 18)

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

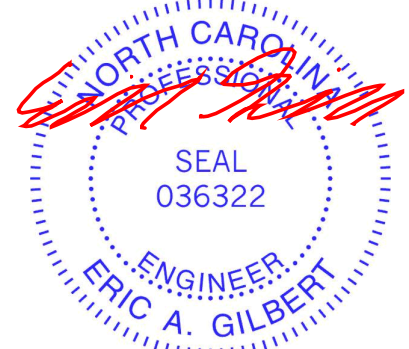
TOP CHORD 3-35=427/151, 4-35=386/129, 4-5=127/280, 5-36=123/282, 36-37=119/344, 37-38=159/385, 6-38=207/502, 7-43=147/408, 43-44=147/408, 8-44=147/408, 8-45=147/408, 45-46=147/408, 9-46=147/408, 9-47=781/651, 47-48=781/651, 10-48=781/651, 10-49=781/651, 49-50=781/651, 11-50=781/651, 11-51=268/535, 51-52=268/535, 52-53=268/535, 53-54=268/535, 12-54=268/535, 12-55=98/327, 13-58=490/924, 58-59=511/852, 14-59=542/778, 14-15=450/477, 15-16=91/285

BOT CHORD 2-60=251/443, 26-60=160/443, 26-61=160/443, 61-62=160/443, 62-63=160/443, 25-63=160/443, 23-70=486/803, 70-71=486/803, 71-72=486/803, 72-73=486/803, 73-74=486/803, 22-74=486/803, 22-75=486/803, 75-76=486/803, 21-76=486/803, 21-77=357/588, 77-78=357/588, 78-79=357/588, 79-80=357/588, 80-81=357/588, 81-82=357/588, 82-83=357/588, 20-83=357/588, 20-84=173/374, 84-85=173/374, 19-85=173/374, 19-86=173/374, 86-87=173/374, 87-88=173/374, 88-89=173/374, 18-89=173/374, 16-18=402/450

WEBS 4-26=76/415, 4-25=929/434, 7-23=1099/955, 9-23=1580/1128, 9-21=0/344, 11-21=196/516, 11-20=1847/1377, 12-20=846/620, 13-18=939/407, 14-18=617/355, 6-25=911/676, 13-20=339/188

NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=32ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone; cantilever left and right exposed; end vertical left and right exposed; Lumber DOL=1.60 plate grip DOL=1.60
- WARNING: This long span truss requires extreme care and experience for proper and safe handling and erection. For general handling and erection guidance, see Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses ("BCSI"), jointly produced by SBCA and TPI. The building owner or the owner's authorized agent shall contract with a qualified registered design professional for the design and inspection of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing. MiTek assumes no responsibility for truss manufacture, handling, erection, or bracing.
- Provide adequate drainage to prevent water ponding.



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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/TPI 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)

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

Job	Truss	Truss Type	Qty	Ply	GREAT SOUTHERN HOMES/ARIEL-II
ACL	A10-1PL	Hip Girder	1	1	I66948258
					Job Reference (optional)

Builders FirstSource (Apex, NC), Apex, NC - 27523,

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ID:Ky_mUF5D5MlephHWYdCUJxyS3m8-5NfkDKShvApnv1tjyeHBbkJAwHKElWk?twoACBywSoE

- 5) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 6) * 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, with BCDL = 10.0psf.
- 7) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 129 lb uplift at joint 2, 1134 lb uplift at joint 25, 1892 lb uplift at joint 23, 606 lb uplift at joint 18 and 1922 lb uplift at joint 20.
- 8) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 9) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 130 lb down and 83 lb up at 6-0-12, 56 lb down and 35 lb up at 8-0-12, 127 lb down and 93 lb up at 10-0-12, 127 lb down and 138 lb up at 12-0-12, 172 lb down and 180 lb up at 14-0-12, 172 lb down and 180 lb up at 16-0-12, 172 lb down and 180 lb up at 18-0-12, 172 lb down and 180 lb up at 20-0-12, 172 lb down and 180 lb up at 22-0-12, 172 lb down and 180 lb up at 24-0-12, 172 lb down and 180 lb up at 26-0-12, 172 lb down and 180 lb up at 28-0-12, 172 lb down and 176 lb up at 30-0-12, 172 lb down and 180 lb up at 32-0-12, 172 lb down and 180 lb up at 34-0-12, 172 lb down and 180 lb up at 36-0-12, 172 lb down and 180 lb up at 38-0-12, 172 lb down and 180 lb up at 40-0-12, 172 lb down and 180 lb up at 42-0-12, 172 lb down and 180 lb up at 44-0-12, 172 lb down and 180 lb up at 46-0-12, 129 lb down and 147 lb up at 48-0-12, 40 lb down and 42 lb up at 50-0-12, 129 lb down and 73 lb up at 52-0-12, and 130 lb down and 62 lb up at 54-0-12, and 270 lb down and 142 lb up at 55-11-4 on top chord, and 183 lb down and 79 lb up at 6-0-12, 131 lb down and 81 lb up at 8-0-12, 78 lb down and 48 lb up at 10-0-12, 85 lb down and 61 lb up at 12-0-12, 78 lb down and 50 lb up at 14-0-12, 78 lb down and 50 lb up at 16-0-12, 78 lb down and 50 lb up at 18-0-12, 78 lb down and 50 lb up at 20-0-12, 78 lb down and 50 lb up at 22-0-12, 78 lb down and 50 lb up at 24-0-12, 78 lb down and 50 lb up at 26-0-12, 78 lb down and 50 lb up at 28-0-12, 78 lb down and 50 lb up at 30-0-12, 78 lb down and 50 lb up at 32-0-12, 78 lb down and 50 lb up at 34-0-12, 78 lb down and 50 lb up at 36-0-12, 78 lb down and 50 lb up at 38-0-12, 78 lb down and 50 lb up at 40-0-12, 78 lb down and 50 lb up at 42-0-12, 78 lb down and 50 lb up at 44-0-12, 78 lb down and 50 lb up at 46-0-12, 85 lb down and 61 lb up at 48-0-12, 155 lb down and 107 lb up at 50-0-12, and 72 lb down and 17 lb up at 52-0-12, and 71 lb down at 54-0-12 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- 10) 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 + Roof Live (balanced): Lumber Increase=1.15,

Plate Increase=1.15

Uniform Loads (lb/ft)

Vert: 1-6=-60, 6-12=-60, 12-13=-60, 13-17=-60,

27-31=-20

Concentrated Loads (lb)

Vert: 24=-38 (B), 9=-105 (B), 35=-90 (B), 36=-16 (B),

37=-87 (B), 38=-86 (B), 39=-105 (B), 40=-105 (B),

41=-105 (B), 42=-105 (B), 43=-105 (B), 44=-105 (B),

45=-105 (B), 46=-105 (B), 47=-105 (B), 48=-105 (B),

49=-105 (B), 50=-105 (B), 51=-105 (B), 52=-105 (B),

53=-105 (B), 54=-105 (B), 55=-86 (B), 57=-89 (B),

58=-90 (B), 59=-230 (B), 60=-183 (B), 61=-127 (B),

62=-56 (B), 63=-57 (B), 64=-38 (B), 66=-38 (B),

67=-38 (B), 68=-38 (B), 70=-38 (B), 71=-38 (B),

73=-38 (B), 74=-38 (B), 76=-38 (B), 77=-38 (B),

78=-38 (B), 80=-38 (B), 81=-38 (B), 83=-38 (B),

84=-38 (B), 85=-38 (B), 86=-57 (B), 87=-143 (B),

88=-54 (B), 89=-52 (B)

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

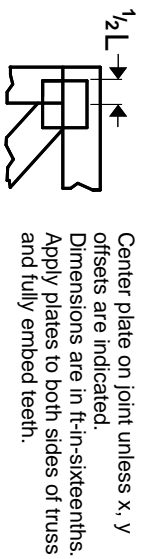
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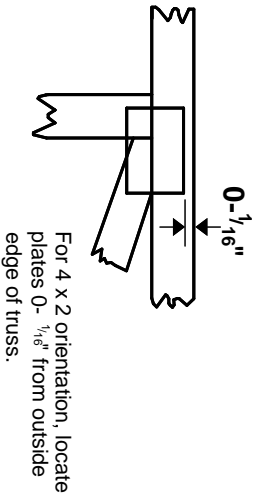
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Symbols

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.

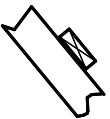
* Plate location details available in MITek software or upon request.

PLATE SIZE

4 X 4

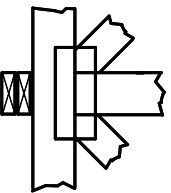
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

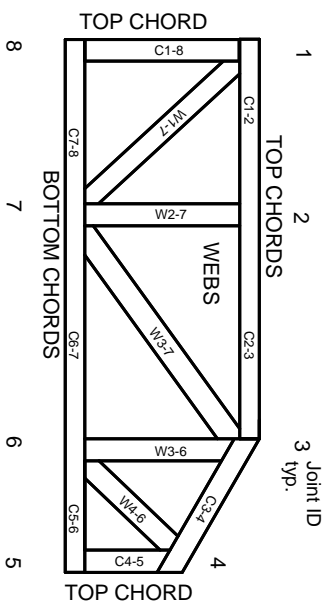


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TP1: 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/TP1 section 6.3. These truss designs rely on Lumber values established by others.

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MITek

ENGINEERING BY
TRENGO
A MITek Affiliate

MITek Engineering Reference Sheet: MIL-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/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.