

RE: 24030135  
 137 Serenity-Roof-B326 A COP GRH

Trenco  
 818 Soundside Rd  
 Edenton, NC 27932

**Site Information:**

Customer: David Weekley Homes Project Name: 24030135  
 Lot/Block: 137 Model:  
 Address: 561 Serenity Walk Drive Subdivision: Serenity  
 City: Fuquay-Varina State: NC

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

Design Code: IRC2018/TPI2014 Design Program: MiTek 20/20 8.7  
 Wind Code: ASCE 7-16 Wind Speed: 130 mph  
 Roof Load: 40.0 psf Floor Load: N/A psf

This package includes 37 individual, dated Truss Design Drawings and 0 Additional Drawings.

No.	Seal#	Truss Name	Date	No.	Seal#	Truss Name	Date
1	I64619660	D02	4/2/2024	21	I64619680	VLD4	4/2/2024
2	I64619661	B02	4/2/2024	22	I64619681	VLD5	4/2/2024
3	I64619662	E01	4/2/2024	23	I64619682	VLD6	4/2/2024
4	I64619663	B01	4/2/2024	24	I64619683	VLD7	4/2/2024
5	I64619664	D01	4/2/2024	25	I64619684	VLB1	4/2/2024
6	I64619665	A06	4/2/2024	26	I64619685	VLB2	4/2/2024
7	I64619666	A09	4/2/2024	27	I64619686	VLB3	4/2/2024
8	I64619667	A08	4/2/2024	28	I64619687	VLB4	4/2/2024
9	I64619668	A07	4/2/2024	29	I64619688	VLB5	4/2/2024
10	I64619669	A05	4/2/2024	30	I64619689	VLB6	4/2/2024
11	I64619670	G01	4/2/2024	31	I64619690	VLB7	4/2/2024
12	I64619671	A01	4/2/2024	32	I64619691	VLB8	4/2/2024
13	I64619672	A03	4/2/2024	33	I64619692	PBA2	4/2/2024
14	I64619673	A04	4/2/2024	34	I64619693	PBA	4/2/2024
15	I64619674	H01	4/2/2024	35	I64619694	PBA1	4/2/2024
16	I64619675	H02	4/2/2024	36	I64619695	C01	4/2/2024
17	I64619676	J01	4/2/2024	37	I64619696	C02	4/2/2024
18	I64619677	VLD1	4/2/2024				
19	I64619678	VLD2	4/2/2024				
20	I64619679	VLD3	4/2/2024				

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

Truss Design Engineer's Name: Gilbert, Eric

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

North Carolina COA: C-0844

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 TRENCO. Any project specific information included is for TRENCO customers file reference purpose only, and was not taken into account in the preparation of these designs. 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.



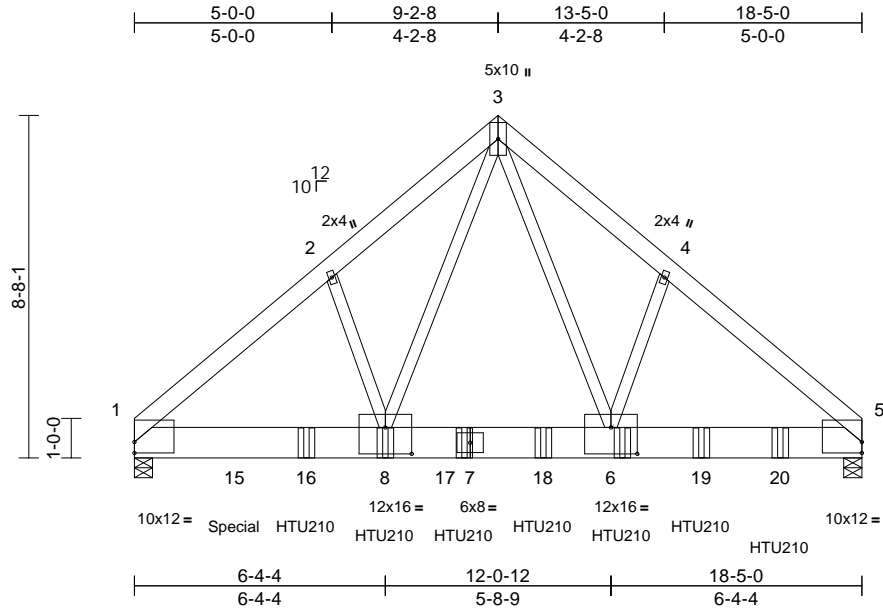
April 02, 2024

Job 24030135	Truss D02	Truss Type Common Girder	Qty 1	Ply 3	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619660
-----------------	--------------	-----------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:ahvae5BsMWascBuTkn6buzRAib-RfC?PsB70Hq3NSgPqnL8w3uITxbGKWrCDoi7J4zJC?F

Page: 1



Scale = 1:58.3

Plate Offsets (X, Y): [1:Edge,0-3-5], [5:Edge,0-3-5], [6:0-8-0,0-8-0], [8:0-8-0,0-8-0]

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	0.36	Vert(LL)	-0.10	8-14	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.71	Vert(CT)	-0.17	8-14	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.88	Horz(CT)	0.02	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 497 lb	FT = 20%

**LUMBER**

TOP CHORD 2x6 SP No.2  
 BOT CHORD 2x10 SP 2400F 2.0E  
 WEBS 2x4 SP No.3 \*Except\* 8-3,6-3:2x4 SP No.2

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS**

(size) 1=0-5-8, 5=0-5-8  
 Max Horiz 1=180 (LC 11)  
 Max Grav 1=14904 (LC 21), 5=10832 (LC 6)

**FORCES**

(lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 3-4=-12415/0, 4-5=-12577/0, 1-2=-14250/0, 2-3=-14155/0  
 BOT CHORD 1-8=0/10914, 6-8=0/7243, 5-6=0/9539  
 WEBS 2-8=-203/298, 3-8=0/10778, 3-6=0/6817, 4-6=-113/298

**NOTES**

- 3-ply truss to be connected together as follows:  
 Top chords connected with 10d (0.131"x3") nails as follows: 2x6 - 2 rows staggered at 0-9-0 oc.  
 Bottom chords connected with Simpson SDS 1/4 x 4-1/2 screws as follows: 2x10 - 3 rows staggered at 0-4-0 oc.  
 Web chords connected with 10d (0.131"x3") nails as follows: 2x4 - 1 row at 0-9-0 oc.
- All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
- Unbalanced roof live loads have been considered for this design.

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; 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
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- Use Simpson Strong-Tie HTU210 (32-10d Girder, 14-10dx1 1/2 Truss, Single Ply Girder) or equivalent spaced at 2-0-0 oc max. starting at 4-4-4 from the left end to 16-4-4 to connect truss(es) to back face of bottom chord.
- Fill all nail holes where hanger is in contact with lumber.
- Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 8833 lb down and 522 lb up at 2-6-8 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.

**LOAD CASE(S)** Standard

- Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
 Uniform Loads (lb/ft)  
 Vert: 3-5=-60, 1-3=-60, 9-12=-20  
 Concentrated Loads (lb)

Vert: 7=-1900 (B), 8=-1900 (B), 6=-1900 (B), 15=-5487 (B), 16=-1904 (B), 18=-1900 (B), 19=-1900 (B), 20=-1900 (B)



April 2, 2024

**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)



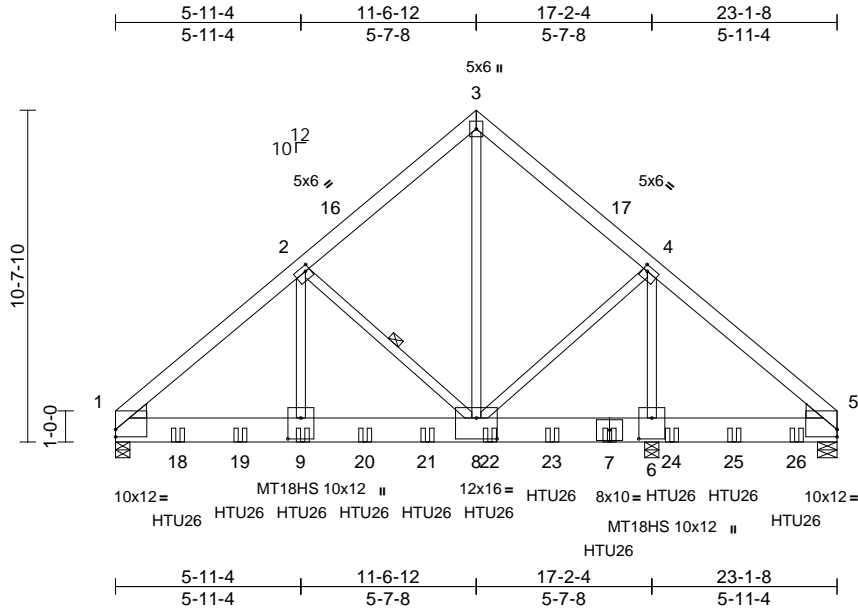
818 Soundside Road  
 Edenton, NC 27932

Job 24030135	Truss B02	Truss Type Common Girder	Qty 1	Ply 2	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619661
-----------------	--------------	-----------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:50  
ID:IFFKd9\_s5HOVK9vBFwqTAGzRAMn-RfC?PsB70Hq3NSgPqnL8w3uITxbGKwRCDoi7J4zJC?f

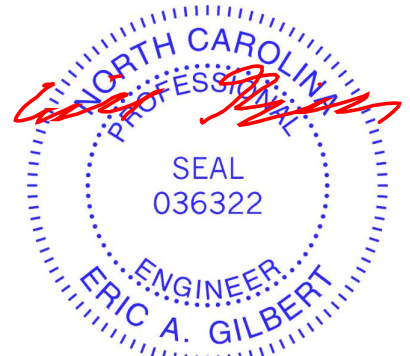
Page: 1



Scale = 1:73.9  
Plate Offsets (X, Y): [1:Edge,0-2-13], [2:0-1-12,0-2-0], [4:0-1-12,0-2-0], [5:Edge,0-2-13], [6:0-8-0,0-5-0], [8:0-8-0,0-8-0], [9:0-8-0,0-5-0]

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	0.31	Vert(LL)	-0.09	8-9	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.36	Vert(CT)	-0.16	8-9	>999	180	MT18HS	244/190
TCDL	10.0	Rep Stress Incr	NO	WB	0.77	Horz(CT)	0.02	6	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 429 lb	FT = 20%

- LUMBER**
- TOP CHORD 2x6 SP No.2
  - BOT CHORD 2x10 SP 2400F 2.0E
  - WEBS 2x4 SP No.2
  - WEDGE Left: 2x6 SP No.2  
Right: 2x6 SP No.2
- BRACING**
- TOP CHORD Structural wood sheathing directly applied or 4-9-13 oc purlins.
  - BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.
  - WEBS 1 Row at midpt 2-8
- REACTIONS** (size) 1=0-5-8, 5=0-7-8, 6=0-5-8  
Max Horiz 1=226 (LC 9)  
Max Uplift 5=-509 (LC 13)  
Max Grav 1=8855 (LC 5), 5=658 (LC 19), 6=12905 (LC 6)
- FORCES** (lb) - Maximum Compression/Maximum Tension
- TOP CHORD 1-2=-9851/0, 2-3=-5016/0, 3-4=-5021/0, 4-5=-83/414
  - BOT CHORD 1-9=0/7514, 8-9=0/7514, 6-8=-300/0, 5-6=-300/5
  - WEBS 2-9=0/6308, 2-8=-5110/0, 3-8=0/5959, 4-8=0/5533, 4-6=-7349/0
- NOTES**
- 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:  
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc.  
Bottom chords connected as follows: 2x10 - 3 rows staggered at 0-4-0 oc.  
Web connected as follows: 2x4 - 1 row at 0-5-0 oc.
  - All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
  - Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=25ft; 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
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - Unbalanced snow loads have been considered for this design.
  - All plates are MT20 plates unless otherwise indicated.
  - The Fabrication Tolerance at joint 9 = 16%, joint 6 = 16%
  - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - \* 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.
  - One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 5. This connection is for uplift only and does not consider lateral forces.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
  - Use Simpson Strong-Tie HTU26 (20-10d Girder, 11-10dx1 1/2 Truss) or equivalent spaced at 2-0-0 oc max. starting at 2-0-0 from the left end to 15-10-0 to connect truss(es) to back face of bottom chord.
  - Use Simpson Strong-Tie HTU26 (20-10d Girder, 11-10dx1 1/2 Truss, Single Ply Girder) or equivalent spaced at 2-0-0 oc max. starting at 17-10-0 from the left end to 21-10-0 to connect truss(es) to back face of bottom chord.
  - Fill all nail holes where hanger is in contact with lumber.
- LOAD CASE(S)** Standard
- Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-3=-60, 3-5=-60, 10-13=-20  
Concentrated Loads (lb)  
Vert: 7=-1910 (B), 9=-1910 (B), 18=-1910 (B), 19=-1910 (B), 20=-1910 (B), 21=-1910 (B), 22=-1910 (B), 23=-1910 (B), 24=-884 (B), 25=-884 (B), 26=-884 (B)



April 2, 2024

**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

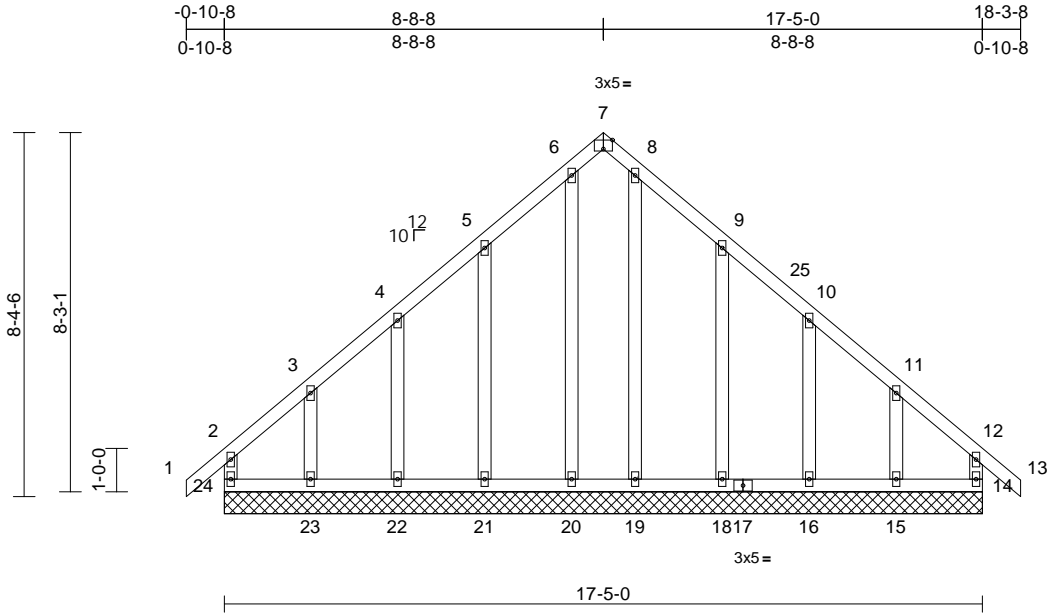
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss E01	Truss Type Common Supported Gable	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619662
-----------------	--------------	--------------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:XfVx5DgSDei7jgY6wjof?zRQtJ-RfC?PsB70Hq3NSgPqnL8w3u1TXbGKWrCdoi7J4zJC?f

Page: 1



Scale = 1:52.9  
Plate Offsets (X, Y): [7:0-2-8,Edge]

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	0.19	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.10	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.17	Horz(CT)	0.00	14	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MR								
BCDL	10.0											
											Weight: 120 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
WEBS 2x4 SP No.3  
OTHERS 2x4 SP No.3

**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)  
14=17-5-0, 15=17-5-0, 16=17-5-0, 18=17-5-0, 19=17-5-0, 20=17-5-0, 21=17-5-0, 22=17-5-0, 23=17-5-0, 24=17-5-0  
Max Horiz 24=-214 (LC 12)  
Max Uplift 14=60 (LC 11), 15=-146 (LC 15), 16=-56 (LC 15), 18=-105 (LC 15), 21=-104 (LC 14), 22=-55 (LC 14), 23=-151 (LC 14), 24=-83 (LC 10)  
Max Grav 14=173 (LC 24), 15=206 (LC 25), 16=183 (LC 22), 18=262 (LC 22), 19=201 (LC 22), 20=165 (LC 27), 21=182 (LC 24), 22=163 (LC 24), 23=215 (LC 24), 24=192 (LC 25)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 12-14=-141/53, 7-8=-89/185, 8-9=-119/262, 9-10=-65/150, 10-11=-78/76, 11-12=-124/112, 12-13=0/39, 1-2=0/39, 2-3=-149/138, 3-4=-98/97, 4-5=-82/150, 5-6=-119/262, 6-7=-88/185, 2-24=-156/72  
BOT CHORD 23-24=-102/158, 22-23=-102/158, 21-22=-102/158, 20-21=-102/158, 19-20=-102/158, 18-19=-102/158, 16-18=-102/158, 15-16=-102/158, 14-15=-102/158

**WEBS** 6-20=-132/14, 8-19=-168/14, 5-21=-139/153, 4-22=-129/106, 3-23=-149/142, 9-18=-220/153, 10-16=-143/104, 11-15=-145/151

- NOTES**
- Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BC DL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner(3E) -0-10-8 to 1-11-12, Exterior(2N) 1-11-12 to 5-8-8, Corner(3R) 5-8-8 to 11-5-4, Exterior (2N) 11-5-4 to 15-3-8, Corner(3E) 15-3-8 to 18-3-8 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
  - Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - Unbalanced snow loads have been considered for this design.
  - This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
  - All plates are 2x4 MT20 unless otherwise indicated.
  - Gable requires continuous bottom chord bearing.
  - Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
  - Gable studs spaced at 2-0-0 oc.
  - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.

- \* 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.
  - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 60 lb uplift at joint 14, 83 lb uplift at joint 24, 104 lb uplift at joint 21, 55 lb uplift at joint 22, 151 lb uplift at joint 23, 105 lb uplift at joint 18, 56 lb uplift at joint 16 and 146 lb uplift at joint 15.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- LOAD CASE(S)** Standard



April 2, 2024

**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.sbccomponents.com)



818 Soundside Road  
Edenton, NC 27932



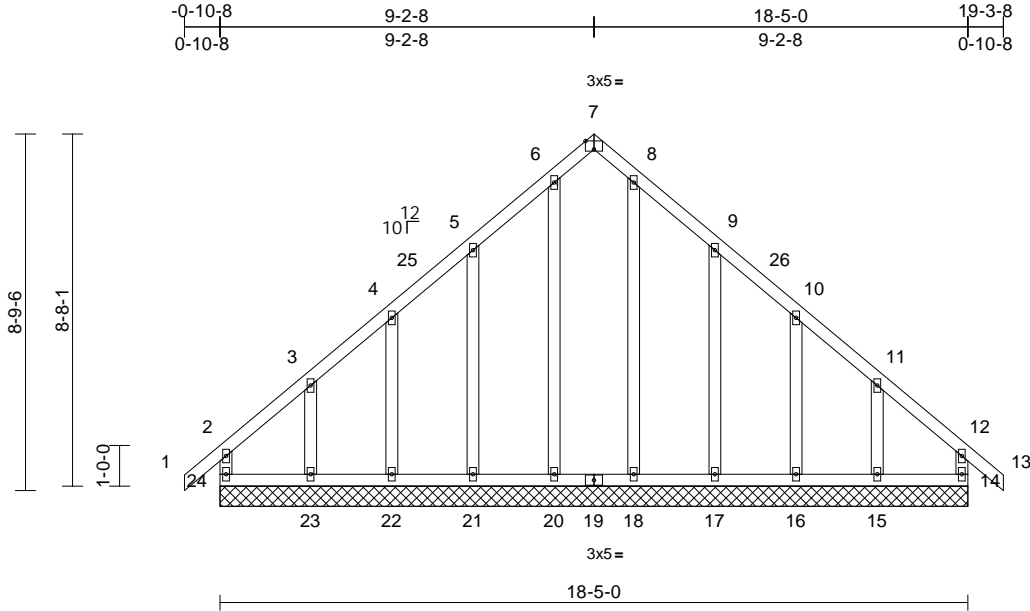


Job 24030135	Truss D01	Truss Type Common Supported Gable	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619664
-----------------	--------------	--------------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:50  
ID:8F2D?hHuvW?rb9K6OMb\_Y2zRQrE-RfC?PsB70Hq3NSgPqnL8u3tXbGKwRCD0i7J4zJC?f

Page: 1



Scale = 1:56.8  
Plate Offsets (X, Y): [7:0-2-8,Edge]

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	0.21	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.12	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.20	Horz(CT)	0.00	14	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MR								
BCDL	10.0											
											Weight: 126 lb	FT = 20%

**LUMBER**

TOP CHORD	2x4 SP No.2
BOT CHORD	2x4 SP No.2
WEBS	2x4 SP No.3
OTHERS	2x4 SP No.3

**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)

Max Horiz	24=224 (LC 13)
Max Uplift	14=50 (LC 11), 15=163 (LC 15), 16=47 (LC 15), 17=116 (LC 15), 21=114 (LC 14), 22=47 (LC 14), 23=168 (LC 14), 24=69 (LC 10)
Max Grav	14=189 (LC 28), 15=219 (LC 25), 16=173 (LC 22), 17=253 (LC 22), 18=225 (LC 22), 20=225 (LC 21), 21=253 (LC 21), 22=173 (LC 21), 23=226 (LC 24), 24=204 (LC 25)

**FORCES** (lb) - Maximum Compression/Maximum Tension

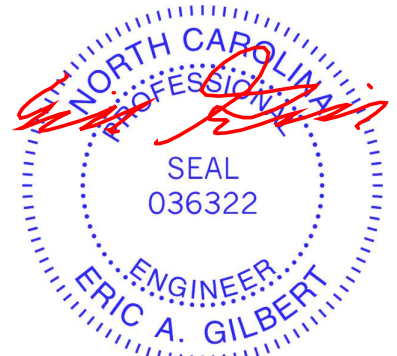
TOP CHORD	2-24=-167/63, 1-2=0/39, 2-3=-165/140, 3-4=-104/90, 4-5=-92/115, 5-6=-114/233, 6-7=-91/169, 7-8=-91/169, 8-9=-114/233, 9-10=-77/115, 10-11=-89/71, 11-12=-153/116, 12-13=0/39, 12-14=-154/47
BOT CHORD	23-24=-106/187, 22-23=-106/187, 21-22=-106/187, 20-21=-106/187, 18-20=-106/187, 17-18=-106/187, 16-17=-106/187, 15-16=-106/187, 14-15=-106/187

**WEBS**

6-20=-185/8, 8-18=-185/6, 5-21=-213/162, 4-22=-133/94, 3-23=-159/159, 9-17=-213/162, 10-16=-133/92, 11-15=-155/167
--

- NOTES**
- Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCCL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner(3E) -0-10-8 to 2-2-12, Exterior(2N) 2-2-12 to 6-2-8, Corner(3R) 6-2-8 to 12-2-4, Exterior(2N) 12-2-4 to 16-2-4, Corner(3E) 16-2-4 to 19-3-8 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
  - Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - Unbalanced snow loads have been considered for this design.
  - This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
  - All plates are 2x4 MT20 unless otherwise indicated.
  - Gable requires continuous bottom chord bearing.
  - Truss to be fully sheathed from one face or securely braced against lateral movement (i.e. diagonal web).
  - Gable studs spaced at 2-0-0 oc.
  - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.

- \* 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.
  - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 69 lb uplift at joint 24, 50 lb uplift at joint 14, 114 lb uplift at joint 21, 47 lb uplift at joint 22, 168 lb uplift at joint 23, 116 lb uplift at joint 17, 47 lb uplift at joint 16 and 163 lb uplift at joint 15.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- LOAD CASE(S)** Standard



April 2, 2024

**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.sbccomponents.com)



818 Soundside Road  
Edenton, NC 27932

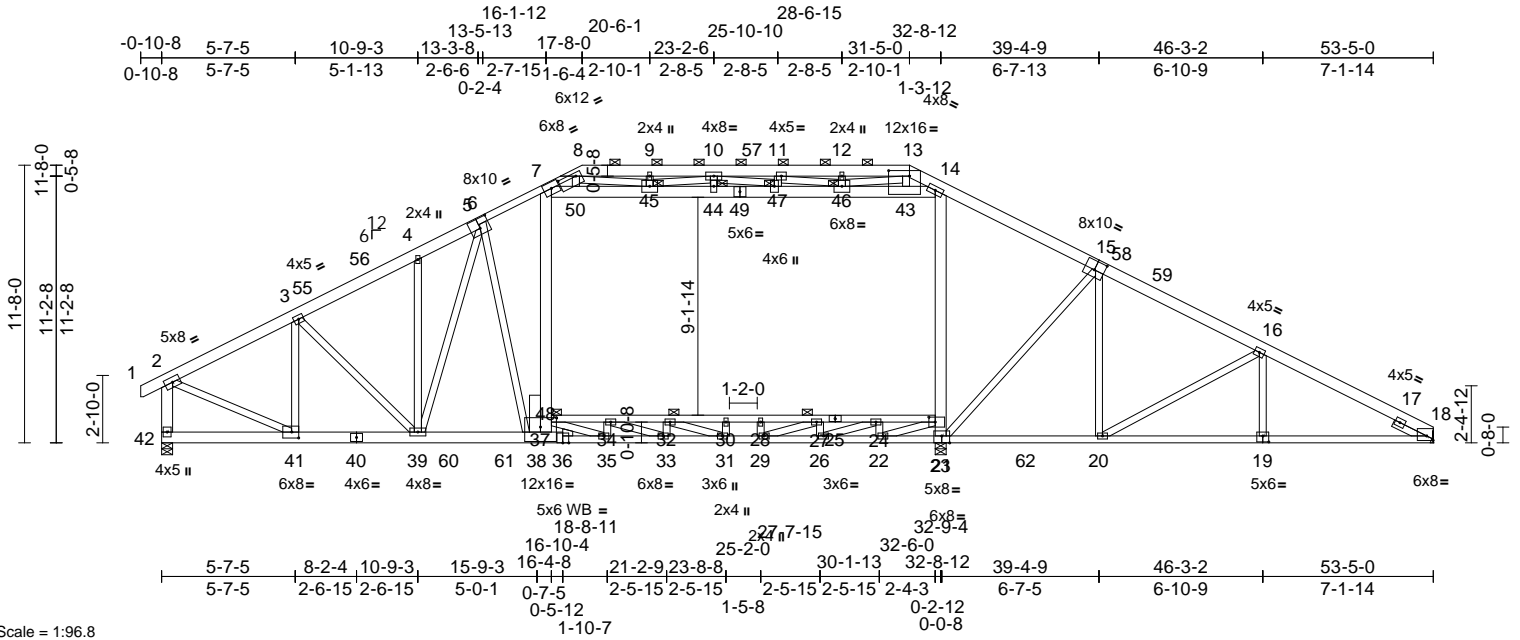
Job 24030135	Truss A06	Truss Type Attic Girder	Qty 1	Ply 4	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619665
-----------------	--------------	----------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:47

Page: 1

ID:PgZvt1?lwruiNEY\_xH4fkzRAp7-RfC?PsB70Hq3NSgPqnL8w3lTXbGKwRcDoi7J4zJC?f



Scale = 1:96.8

[5:0-5-0,0-5-0], [8:0-9-4,0-1-12], [13:0-10-8,0-2-12], [15:0-5-0,0-4-8], [18:Edge,0-2-4], [19:0-3-0,0-3-0], [21:0-4-0,Edge], [23:0-3-4,0-2-8], [37:0-8-0,0-4-12],

Plate Offsets (X, Y): [41:0-3-8,0-3-0]

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	0.94	Vert(LL)	-0.49	35-38	>804	240
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.71	Vert(CT)	-0.73	35-38	>532	180
TCDL	10.0	Rep Stress Incr	NO	WB	0.87	Horz(CT)	0.21	18	n/a	n/a
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH		Attic	-0.24	23-37	>838	360
BCDL	10.0									

Weight: 2009 lb FT = 20%

**LUMBER**  
**TOP CHORD** 2x6 SP No.2 \*Except\* 5-8:2x4 SP 2400F 2.0E  
**BOT CHORD** 2x4 SP 2400F 2.0E \*Except\* 25-23,25-37:2x4 SP No.2, 40-42:2x6 SP No.2, 40-36:2x6 SP 2400F 2.0E  
**WEBS** 2x4 SP No.3 \*Except\* 42-2,7-38,48-38,49-7,49-14:2x6 SP No.2, 14-21:2x6 SP 2400F 2.0E, 41-2:2x4 SP No.2  
**OTHERS** 2x4 SP No.3  
**SLIDER** Right 2x4 SP No.3 -- 1-6-0  
**BRACING**  
**TOP CHORD** Structural wood sheathing directly applied or 5-10-15 oc purlins, except end verticals, and 2-0-0 oc purlins (6-0-0 max.): 8-13.  
**BOT CHORD** Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 34-37,32-34,30-32,28-30,27-28,24-27.  
**JOINTS** 1 Brace at Jt(s): 37, 44, 45, 46, 47  
**REACTIONS** (size) 18= Mechanical, 21=0-5-8, 42=0-5-8  
 Max Horiz 42=184 (LC 10)  
 Max Uplift 18=407 (LC 12), 21=5346 (LC 45), 42=671 (LC 12)  
 Max Grav 18=8868 (LC 46), 21=778 (LC 12), 42=11748 (LC 46)

**NOTES**  
**TOP CHORD** 1-2=0/28, 2-3=13440/761, 3-4=17245/1003, 4-6=18787/1093, 6-7=18557/1088, 7-8=6795/521, 8-9=3060/520, 9-10=3052/521, 10-11=3686/695, 11-12=1499/1776, 12-13=1499/1776, 13-14=4279/403, 14-16=17885/1059, 16-18=17673/875, 2-42=11551/690

- 4-ply truss to be connected together with 10d (0.131"x3") nails as follows:  
 Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
 Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
 Web connected as follows: 2x6 - 2 rows staggered at 0-4-0 oc, Except member 38-48 2x6 - 3 rows staggered at 0-4-0 oc, member 14-21 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
 Attach BC w/ 1/2" diam. bolts (ASTM A-307) in the center of the member w/washers at 4-0-0 oc.
- All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
- Unbalanced roof live loads have been considered for this design.



April 2, 2024

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/TPH 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)



818 Soundside Road  
 Edenton, NC 27932

Job 24030135	Truss A06	Truss Type Attic Girder	Qty 1	Ply 4	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619665
-----------------	--------------	----------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:47

Page: 2

ID:pGeZvt1?lwruINEY\_xH4fkzRAp7-RfC?PsB70Hq3NSgPqnL8w3uTXbGKWrCDoi7J4zJC?

- 4) Wind: ASCE 7-16; Vult=130mph (3-second gust)  
Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; 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
- 5) TCELL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- 6) Unbalanced snow loads have been considered for this design.
- 7) This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- 8) Provide adequate drainage to prevent water ponding.
- 9) All plates are 3x5 MT20 unless otherwise indicated.
- 10) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 11) \* 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.
- 12) Ceiling dead load (5.0 psf) on member(s). 7-50, 45-50, 44-45, 44-47, 46-47, 43-46, 14-43; Wall dead load (5.0psf) on member(s).7-37, 14-23
- 13) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 34-37, 32-34, 30-32, 28-30, 27-28, 24-27, 23-24
- 14) Refer to girder(s) for truss to truss connections.
- 15) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 407 lb uplift at joint 18 and 5346 lb uplift at joint 21.
- 16) LGT4-SDS3 Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 42. This connection is for uplift only and does not consider lateral forces.
- 17) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- 18) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 19) This truss has large uplift reaction(s) from gravity load case(s). Proper connection is required to secure truss against upward movement at the bearings. Building designer must provide for uplift reactions indicated.
- 20) LGT4 Hurricane ties must have four studs in line below the truss.
- 21) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 9100 lb down and 774 lb up at 15-11-0 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- 22) Attic room checked for L/360 deflection.

**LOAD CASE(S)** Standard

- 1) Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-2=-60, 2-8=-60, 8-13=-60, 13-18=-60, 42-51=-20, 23-37=-30, 7-50=-10, 45-50=-10, 44-45=-10, 44-49=-10, 47-49=-10, 46-47=-10, 43-46=-10, 14-43=-10  
Drag: 37-48=-10, 7-48=-10, 14-23=-10  
Concentrated Loads (lb)  
Vert: 38=-4881 (F)

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



818 Soundside Road  
Edenton, NC 27932



Job 24030135	Truss A09	Truss Type Attic Supported Gable	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619666
-----------------	--------------	-------------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:49  
ID:8kdnNVfrYx7X5iJovJ26tzRBB2-RfC?PsB70Hq3NSgPqnL8w3uITxBGKWRCDoi7J4zJC?z

Page: 1

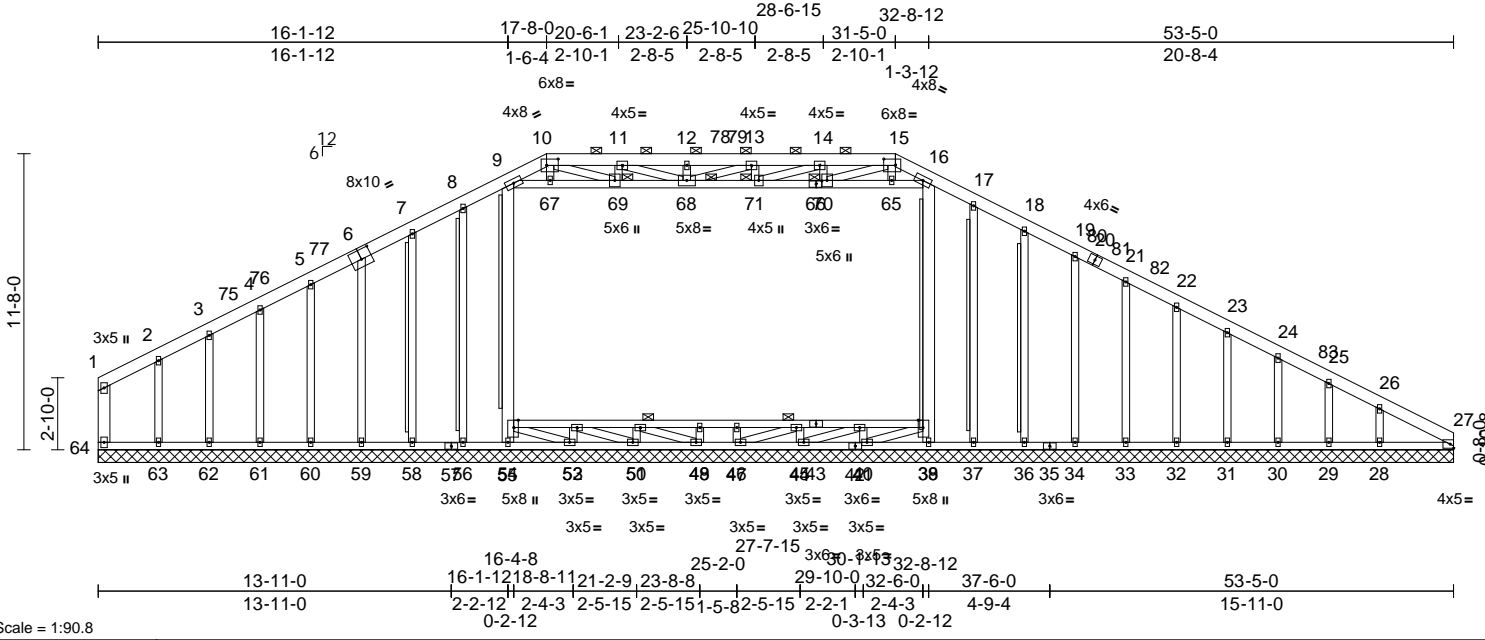


Plate Offsets (X, Y): [6:0-5-0,0-4-8], [10:0-5-8,0-3-0], [15:0-5-8,0-3-0], [39:Edge,0-2-3], [54:Edge,0-2-2], [66:0-2-11,0-1-8]

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	0.43	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.12	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.62	Horiz(TL)	0.02	27	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 504 lb	FT = 20%

LUMBER		Max Uplift	28--89 (LC 14), 29--189 (LC 15), 30--17 (LC 14), 31--49 (LC 15), 32--43 (LC 15), 33--44 (LC 15), 34--45 (LC 15), 36--46 (LC 15), 37--124 (LC 38), 38--1 (LC 10), 56--115 (LC 38), 58--45 (LC 14), 59--50 (LC 14), 60--37 (LC 14), 61--47 (LC 14), 62--28 (LC 14), 63--119 (LC 14), 64--109 (LC 15)	BOT CHORD	63-64--79/168, 62-63--79/168, 61-62--79/168, 60-61--79/168, 59-60--79/168, 58-59--79/168, 56-58--79/168, 55-56--79/168, 53-55--85/183, 51-53--63/129, 49-51--57/117, 47-49--68/129, 44-47--58/112, 41-44--64/115, 38-41--80/140, 37-38--78/164, 36-37--78/164, 34-36--78/164, 33-34--78/164, 32-33--78/164, 31-32--78/164, 30-31--78/164, 29-30--78/164, 28-29--78/164, 27-28--78/164, 52-54--16/38, 50-52--21/50, 48-50--14/38, 46-48--14/38, 45-46--14/38, 40-45--22/54, 39-40--19/51
TOP CHORD	2x6 SP No.2				
BOT CHORD	2x4 SP No.2 *Except* 35-27,57-42:2x4 SP 2400F 2.0E, 57-64:2x4 SP No.1				
WEBS	2x4 SP No.3 *Except* 9-55,16-38,64-1:2x6 SP No.2, 16-66,66-9:2x4 SP No.2				
OTHERS	2x4 SP No.3 *Except* 0-0,0-0,0-0,0-0,0-0:2x4 SPF No.2(flat)				
BRACING		Max Grav	28--538 (LC 24), 29--71 (LC 18), 30--215 (LC 6), 31--164 (LC 49), 32--177 (LC 37), 33--216 (LC 43), 34--234 (LC 43), 36--217 (LC 43), 37--142 (LC 49), 38--1161 (LC 38), 41--327 (LC 20), 44--301 (LC 20), 47--230 (LC 20), 49--231 (LC 20), 51--301 (LC 20), 53--330 (LC 20), 55--1134 (LC 38), 56--144 (LC 47), 58--228 (LC 41), 59--239 (LC 41), 60--223 (LC 41), 61--191 (LC 35), 62--164 (LC 56), 63--286 (LC 47), 64--100 (LC 50)		
TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except end verticals, and 2-0-0 oc purlins (4-2-4 max.): 10-15.				
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing, Except: 10-0-0 oc bracing: 48-50,46-48,45-46,40-45,39-40.				
WEBS	T-Brace: 2x4 SPF No.2 - 9-54, 16-39, 17-37, 18-36, 8-56, 7-58 Fasten (2X) T and I braces to narrow edge of web with 10d (0.131"x3") nails, 6in o.c., with 3in minimum end distance. Brace must cover 90% of web length.				
JOINTS		FORCES	(lb) - Maximum Compression/Maximum Tension		
	1 Brace at Jt(s): 68, 69, 70, 71	TOP CHORD	1-2--53/118, 2-3--37/99, 3-4--52/127, 4-5--70/149, 5-7--107/211, 7-8--122/250, 8-9--105/267, 9-10--926/239, 10-11--2068/439, 11-12--2800/569, 12-13--2800/569, 13-14--2724/564, 14-15--1991/436, 15-16--812/241, 16-17--104/278, 17-18--123/270, 18-19--109/246, 19-21--89/222, 21-22--70/199, 22-23--52/176, 23-24--48/153, 24-25--69/135, 25-26--156/123, 26-27--142/144, 1-64--66/91		
REACTIONS	(size)				
	27=53-5-0, 28=53-5-0, 29=53-5-0, 30=53-5-0, 31=53-5-0, 32=53-5-0, 33=53-5-0, 34=53-5-0, 36=53-5-0, 37=53-5-0, 38=53-5-0, 41=53-5-0, 44=53-5-0, 47=53-5-0, 49=53-5-0, 51=53-5-0, 53=53-5-0, 55=53-5-0, 56=53-5-0, 58=53-5-0, 59=53-5-0, 60=53-5-0, 61=53-5-0, 62=53-5-0, 63=53-5-0, 64=53-5-0 Max Horiz 64--222 (LC 15)				



April 2, 2024

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/TP1 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)



818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH	I64619666
24030135	A09	Attic Supported Gable	1	1	Job Reference (optional)	

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:49

Page: 2

ID:8kdnaNVfrXy7X5iJovJ26tzRBB2-RfC?PsB70Hq3NSgPqnL8w3uITxbGKWrCDoi7J4zJC?f

WEBS 54-55=-1090/1, 9-54=-1078/106, **LOAD CASE(S)** Standard

38-39=-1116/28, 16-39=-1101/123,  
48-49=-115/0, 46-47=-115/0, 52-53=-171/0,  
53-54=-57/22, 50-51=-147/0, 51-52=-13/11,  
49-50=-11/13, 40-41=-173/0, 44-45=-148/0,  
40-44=-3/15, 45-47=-10/17, 15-65=-48/11,  
9-67=-16/694, 67-69=-15/688,  
68-69=-279/2058, 68-71=-412/2714,  
70-71=-276/1982, 65-70=-11/565,  
16-65=-13/579, 10-67=-15/15,  
12-68=-256/65, 11-69=-470/113,  
14-70=-483/114, 15-70=-281/1498,  
13-71=-239/66, 14-71=-148/778,  
13-68=-66/182, 39-41=-27/17,  
10-69=-279/1447, 11-68=-145/779,  
17-37=-86/159, 18-36=-176/71,  
19-34=-194/69, 21-33=-177/67,  
22-32=-128/68, 23-31=-118/69,  
24-30=-144/52, 25-29=-31/163,  
26-28=-346/91, 8-56=-87/150, 7-58=-187/70,  
6-59=-199/74, 5-60=-183/61, 4-61=-145/69,  
3-62=-120/62, 2-63=-168/118

#### NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust)  
Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-2-12 to 5-6-14, Interior (1) 5-6-14 to 10-1-6, Exterior(2R) 10-1-6 to 38-11-10, Interior (1) 38-11-10 to 48-0-14, Exterior(2E) 48-0-14 to 53-5-0 zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Provide adequate drainage to prevent water ponding.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Ceiling dead load (5.0 psf) on member(s). 9-67, 67-69, 68-69, 68-71, 70-71, 65-70, 16-65; Wall dead load (5.0psf) on member(s).9-54, 16-39
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 109 lb uplift at joint 64, 1 lb uplift at joint 38, 124 lb uplift at joint 37, 46 lb uplift at joint 36, 45 lb uplift at joint 34, 44 lb uplift at joint 33, 43 lb uplift at joint 32, 49 lb uplift at joint 31, 17 lb uplift at joint 30, 189 lb uplift at joint 29, 89 lb uplift at joint 28, 115 lb uplift at joint 56, 45 lb uplift at joint 58, 50 lb uplift at joint 59, 37 lb uplift at joint 60, 47 lb uplift at joint 61, 28 lb uplift at joint 62 and 119 lb uplift at joint 63.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- Warning: Additional permanent and stability bracing for truss system (not part of this component design) is always required.
- Attic room checked for L/360 deflection.

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



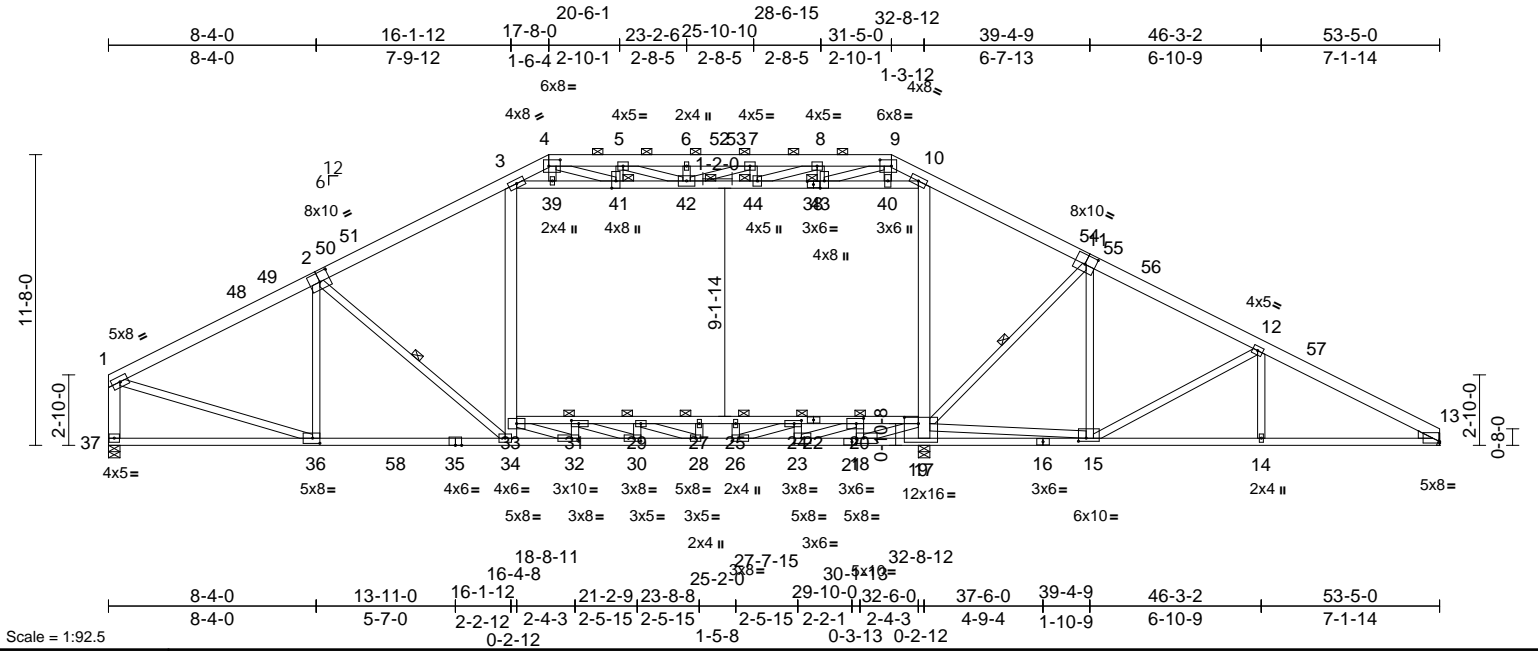
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A08	Truss Type Attic	Qty 6	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619667
-----------------	--------------	---------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:48  
ID:h5TF02ilZyfWTVvSpKto8\_zRQij-RfC?PsB70Hq3NSgPqnL8w3uTlXbGKWRCDoi7J4zJC?f

Page: 1



[2:0-5-0,0-4-8], [4:0-5-8,0-3-0], [9:0-5-8,0-3-0], [11:0-5-0,0-4-8], [13:Edge,0-0-11], [15:0-3-12,0-1-8], [17:0-6-12,0-3-0], [18:0-3-8,0-2-8], [20:0-3-8,0-2-8], [21:0-2-2,0-1-8], [23:0-3-8,0-2-8], [24:0-3-8,0-1-8], [26:0-3-8,0-1-8], [30:0-3-8,0-1-8], [31:0-3-8,0-1-8], [32:0-3-8,0-1-8], [36:0-3-8,0-2-8], [38:0-2-15,0-1-8], [41:0-3-8,0-2-0], [43:0-3-8,0-2-0]

Plate Offsets (X, Y): [41:0-3-8,0-2-0], [43:0-3-8,0-2-0]

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	Vert(LL)	-0.47	27-29	>822	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	Vert(CT)	-0.77	27-29	>509	180		
TCDL	10.0	Rep Stress Incr	YES	WB	Horz(CT)	0.14	13	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH	Attic	-0.35	19-33	>568	360		
BCDL	10.0									Weight: 453 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x6 SP No.2  
BOT CHORD 2x4 SP No.2 \*Except\* 37-35:2x4 SP No.1, 16-13,35-21:2x4 SP 2400F 2.OE  
WEBS 2x4 SP No.3 \*Except\* 3-34,10-17,37-1:2x6 SP No.2, 38-10,36-1,38-3:2x4 SP No.2, 33-32,31-30,29-28,19-18,20-23,24-26,15-19: 2x4 SP No.1  
WEDGE Right: 2x4 SP No.3  
**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 2-11-0 oc purlins, except end verticals, and 2-0-0 oc purlins (3-8-14 max.): 4-9.  
BOT CHORD Rigid ceiling directly applied or 2-5-1 oc bracing.  
WEBS 1 Row at midpt 2-34, 11-19  
JOINTS 1 Brace at Jt(s): 41, 42, 43, 44  
**REACTIONS** (size) 13= Mechanical, 17=0-5-8, 37=0-5-8  
Max Horiz 37=-222 (LC 15)  
Max Uplift 17=-64 (LC 15), 37=-11 (LC 14)  
Max Grav 13=2293 (LC 45), 17=1772 (LC 37), 37=2946 (LC 35)  
**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-3=-3865/14, 3-4=-1893/107, 4-5=-2867/337, 5-6=-3488/492, 6-7=-3488/492, 7-8=-3496/482, 8-9=-2716/356, 9-10=-1707/124, 10-12=-3756/51, 12-13=-4274/39, 1-37=-2815/55  
BOT CHORD 36-37=-107/246, 34-36=-17/3288, 32-34=0/3194, 30-32=0/4799, 28-30=0/6218, 26-28=0/6109, 23-26=0/4206, 18-23=0/1402, 17-18=-2240/0, 15-17=-2057/0, 14-15=0/3722, 13-14=-56/3722, 31-33=-1860/0, 29-31=-3333/0, 27-29=-3224/0, 25-27=-3224/0, 24-25=-3224/0, 20-24=-1321/723, 19-20=-42/2010  
WEBS 2-36=-670/70, 2-34=-132/368, 33-34=-40/280, 3-33=0/1154, 17-19=-1413/169, 10-19=-33/1155, 11-15=-255/99, 12-15=-518/208, 12-14=0/244, 3-39=2054/13, 39-41=-1994/13, 41-42=-1781/599, 42-44=-1691/1229, 43-44=-1896/449, 40-43=-2157/29, 10-40=-2287/29, 1-36=0/3331, 27-28=-104/36, 25-26=-393/0, 32-33=0/2241, 31-32=-836/0, 30-31=0/1561, 29-30=-322/34, 28-29=-400/61, 18-19=0/3886, 18-20=-1374/0, 20-23=0/2972, 23-24=-930/0, 24-26=0/2017, 4-39=0/295, 9-40=0/526, 4-41=-298/1341, 5-41=-433/119, 5-42=-167/660, 6-42=-200/79, 9-43=-292/1457, 8-43=-481/114, 8-44=-139/829, 7-44=-245/65, 7-42=-159/109, 15-19=0/5011, 11-19=-580/316  
**NOTES**  
1) Unbalanced roof live loads have been considered for this design.  
2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCCL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-2-12 to 5-6-14, Interior (1) 5-6-14 to 10-1-6, Exterior(2R) 10-1-6 to 38-11-10, Interior (1) 38-11-10 to 48-0-14, Exterior(2E) 48-0-14 to 53-5-0 zone;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); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10  
4) Unbalanced snow loads have been considered for this design.  
5) Provide adequate drainage to prevent water ponding.  
6) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.



April 2, 2024

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/TPH 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)



818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH	I64619667
24030135	A08	Attic	6	1	Job Reference (optional)	

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:48  
ID:h5TFO2tZyfWTVvSpKto8\_zRQij-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 2

- 7) \* 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.
- 8) Ceiling dead load (5.0 psf) on member(s). 3-39, 39-41, 41-42, 42-44, 43-44, 40-43, 10-40; Wall dead load (5.0psf) on member(s).3-33, 10-19
- 9) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 31-33, 29-31, 27-29, 25-27, 24-25, 20-24, 19-20
- 10) Refer to girder(s) for truss to truss connections.
- 11) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 37 and 17. This connection is for uplift only and does not consider lateral forces.
- 12) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- 13) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 14) Attic room checked for L/360 deflection.

**LOAD CASE(S)** Standard

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacompnents.com](http://www.sbcacompnents.com))



818 Soundside Road  
Edenton, NC 27932



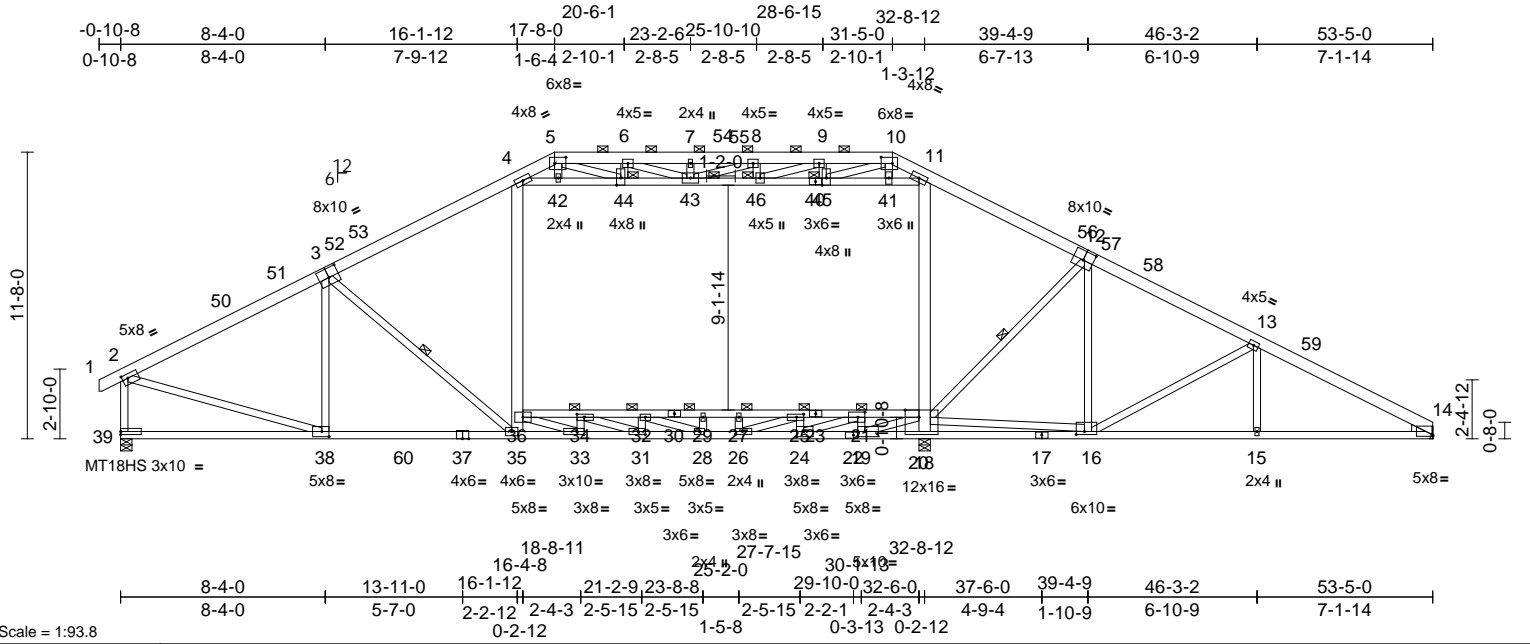
Job 24030135	Truss A07	Truss Type Attic	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619668
-----------------	--------------	---------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:48

Page: 1

ID:1d51NYb\_Snpjgfh0e1reGzRBHO-RfC?PsB70Hq3NSgPqnL8w3ulTXhGKWRcDoi7J4zJC?f



[2:0-2-12,0-2-0], [3:0-5-0,0-4-8], [5:0-5-8,0-3-0], [10:0-5-8,0-3-0], [12:0-5-0,0-4-8], [14:Edge,0-0-11], [16:0-4-0,0-1-8], [19:0-3-8,0-2-8], [20:0-6-12,Edge], [21:0-3-8,0-2-8], [22:0-2-2,0-1-8], [24:0-3-8,0-2-8], [25:0-3-8,0-1-8], [26:0-3-8,0-1-8], [31:0-3-8,0-1-8], [33:0-3-8,0-1-8], [34:0-3-8,0-1-8], [38:0-3-8,0-2-8],

Plate Offsets (X, Y): [44:0-3-8,0-2-0], [45:0-3-8,0-2-0]

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	Vert(LL)	-0.48	29-32	>819	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	Vert(CT)	-0.77	29-32	>506	180	MT18HS	244/190
TCDL	10.0	Rep Stress Incr	YES	WB	Horz(CT)	0.14	14	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH	Attic	-0.35	20-36	>568	360		
BCDL	10.0										

Weight: 453 lb FT = 20%

LUMBER					
TOP CHORD	2x6 SP No.2	BOT CHORD	34-36=-1865/0, 32-34=-3331/0, 29-32=-3215/0, 27-29=-3215/0, 25-27=-3215/0, 21-25=-1305/739, 20-21=-42/2036, 38-39=-108/219, 35-38=-16/3320, 33-35=0/3214, 31-33=0/4818, 28-31=0/6229, 26-28=0/6113, 24-26=0/4203, 19-24=0/1393, 18-19=-2254/0, 16-18=-2068/0, 15-16=0/3733, 14-15=-55/3733	2)	Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCCL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-9-14 to 4-6-4, Interior (1) 4-6-4 to 10-1-6, Exterior(2R) 10-1-6 to 38-11-10, Interior (1) 38-11-10 to 48-0-14, Exterior(2E) 48-0-14 to 53-5-0 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
WEBS	2x4 SP No.3 *Except* 4-35, 11-18:2x6 SP No.2, 40-11,38-2,40-4:2x4 SP No.2, 36-33,34-31,32-28,21-24,25-26,20-19,16-20: 2x4 SP No.1	WEBS	3-38=-653/76, 35-36=-42/292, 4-36=0/1162, 18-20=-1417/167, 11-20=-32/1161, 12-16=-258/97, 13-15=0/244, 4-42=-2060/9, 42-44=-2000/10, 43-44=-1792/595, 43-46=-1704/1222, 45-46=-1911/441, 41-45=-2170/28, 11-41=-2301/28, 2-38=0/3374, 28-29=-102/37, 26-27=-394/0, 33-34=-833/0, 33-36=0/2241, 31-32=-320/36, 31-34=0/1554, 28-32=-407/60, 19-21=-1376/0, 24-25=-932/0, 21-24=0/2977, 25-26=0/2025, 10-41=0/529, 5-42=0/295, 7-43=-200/79, 6-44=-432/119, 9-45=-481/114, 10-45=-292/1458, 8-46=-245/65, 9-46=-139/830, 8-43=-158/110, 13-16=-518/208, 3-35=-148/350, 19-20=0/3892, 16-20=0/5036, 12-20=-587/316, 5-44=-297/1339, 6-43=-168/659	3)	TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
WEDGE	Right: 2x4 SP No.3			4)	Unbalanced snow loads have been considered for this design.
BRACING				5)	This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
TOP CHORD	Structural wood sheathing directly applied or 2-10-14 oc purlins, except end verticals, and 2-0-0 oc purlins (3-8-13 max.): 5-10.			6)	Provide adequate drainage to prevent water ponding.
BOT CHORD	Rigid ceiling directly applied or 2-2-0 oc bracing.				
WEBS	1 Row at midpt 3-35, 12-20				
JOINTS	1 Brace at Jt(s): 43, 44, 45, 46				
REACTIONS	(size) 14= Mechanical, 18=0-5-8, 39=0-5-8 Max Horiz 39=-189 (LC 12) Max Uplift 18=-62 (LC 15), 39=-30 (LC 14) Max Grav 14=2299 (LC 46), 18=1776 (LC 38), 39=2998 (LC 36)				
FORCES	(lb) - Maximum Compression/Maximum Tension				
TOP CHORD	1-2=0/26, 2-4=-3883/11, 4-5=-1900/104, 5-6=-2872/339, 6-7=-3491/494, 7-8=-3491/494, 8-9=-3499/484, 9-10=-2718/358, 10-11=-1709/127, 11-13=-3769/50, 13-14=-4287/33, 2-39=-2868/73				
		NOTES			
		1)	Unbalanced roof live loads have been considered for this design.		



April 2, 2024

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/TPH 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)



818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A07	Truss Type Attic	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH I64619668 Job Reference (optional)
-----------------	--------------	---------------------	----------	----------	---

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:48  
ID:1d5INYb\_SnpjifH0e1reGzRBHO-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKWrCDoi7J4zJC?f

Page: 2

- 7) All plates are MT20 plates unless otherwise indicated.
- 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, with BCDL = 10.0psf.
- 10) Ceiling dead load (5.0 psf) on member(s). 4-42, 42-44, 43-44, 43-46, 45-46, 41-45, 11-41; Wall dead load (5.0psf) on member(s).4-36, 11-20
- 11) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 34-36, 32-34, 29-32, 27-29, 25-27, 21-25, 20-21
- 12) Refer to girder(s) for truss to truss connections.
- 13) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 39 and 18. This connection is for uplift only and does not consider lateral forces.
- 14) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- 15) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 16) Attic room checked for L/360 deflection.

**LOAD CASE(S)** Standard

**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](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacompnents.com](http://www.sbcacompnents.com))



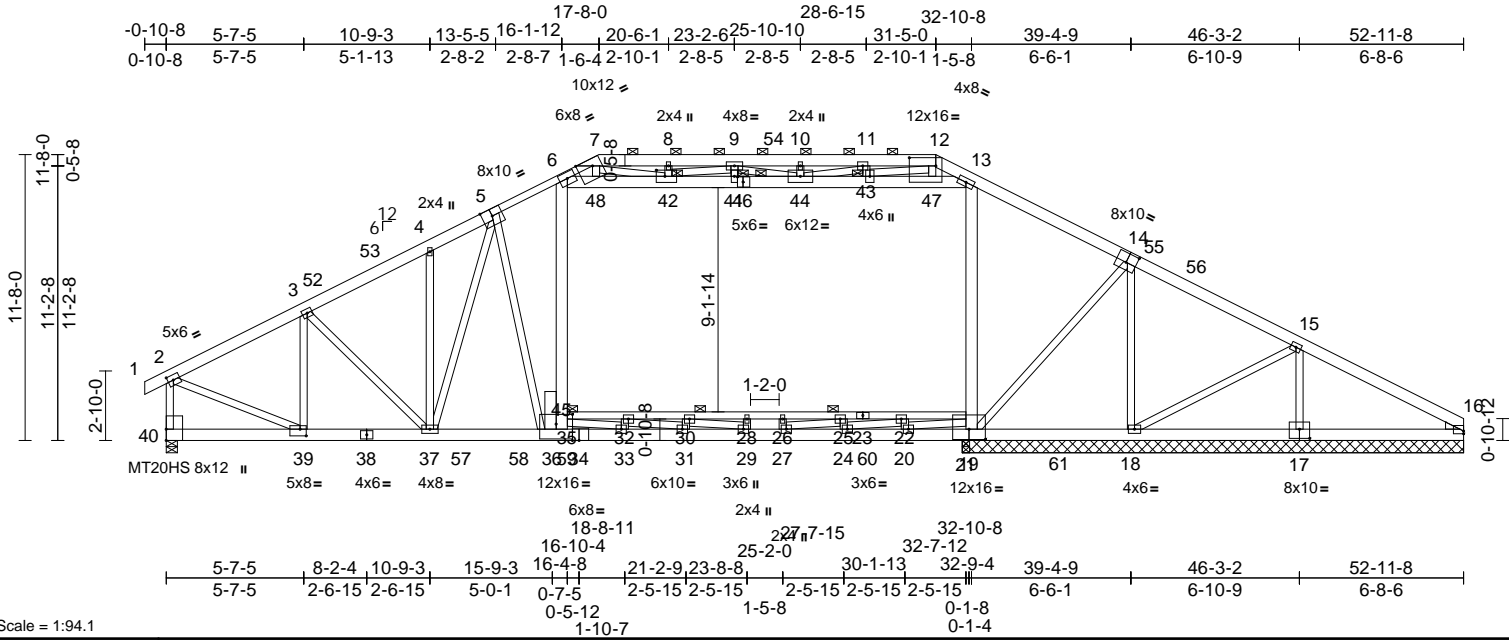
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A05	Truss Type Attic Girder	Qty 1	Ply 4	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619669
-----------------	--------------	----------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:46  
ID:V1Y0g5gMUgWQZrYxIBXyItzRA\_fRfC?PsB70Hq3NSgPqnl8w3uTXbGKwRCDoi7J4zJC?f

Page: 1



Scale = 1:94.1

[2:0-2-11,0-2-8], [7:0-7-8,Edge], [12:1-1-0,0-4-0], [14:0-5-0,0-4-8], [16:Edge,0-1-5], [17:0-5-0,0-4-8], [21:0-8-0,0-5-0], [34:0-3-4,Edge], [35:0-8-0,0-4-12],

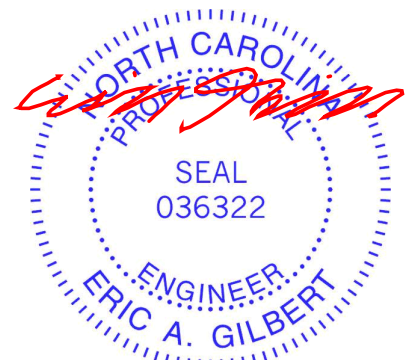
Plate Offsets (X, Y): [39:0-3-0,0-3-4], [42:0-4-4,0-3-0], [46:0-2-12,0-2-8]

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	0.98	Vert(LL)	-0.37	33-36	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.60	Vert(CT)	-0.56	33-36	>703	180	MT20HS	187/143
TCDL	10.0	Rep Stress Incr	NO	WB	0.97	Horz(CT)	0.11	16	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH		Attic	-0.18	21-35	>999	360		
BCDL	10.0											

Weight: 2098 lb FT = 20%

LUMBER		TOP CHORD	
TOP CHORD	2x6 SP No.2 *Except* 5-7:2x4 SP No.2	1-2=0/27, 2-3=-13807/798, 3-4=-17558/1046,	
BOT CHORD	2x6 SP 2400F 2.0E *Except* 23-21,23-35:2x4 SP No.2, 38-40,17-16:2x6 SP No.2	4-6=-18871/1132, 6-7=-6433/522, 7-8=-5352/647, 8-9=-5336/647, 9-10=-4443/719, 10-11=-4443/719, 11-12=-2508/499, 12-13=-3584/382, 13-15=-18319/1104, 15-16=-5618/331, 2-40=-11725/713	
WEBS	2x4 SP No.3 *Except* 6-36,13-19,45-36,46-6,46-13:2x6 SP No.2, 39-2:2x4 SP No.2	39-40=-122/292, 37-39=-750/12364, 36-37=-850/16344, 33-36=-714/14204, 31-33=-405/17353, 29-31=-14/18718, 27-29=0/19486, 24-27=-55/18148, 20-24=-375/14901, 18-20=-734/13134, 16-18=-243/4912, 32-35=-1101/0, 30-32=-2919/0, 28-30=-3783/0, 26-28=-3783/0, 25-26=-3783/0, 22-25=-2400/0, 21-22=-471/1856	
WEDGE	Right: 2x4 SP No.3	35-36=-615/7326, 6-35=-530/8519, 19-21=-665/7236, 13-21=-524/7570, 14-18=-8009/468, 15-17=-7038/424, 32-33=-853/0, 33-35=0/3471, 30-31=-612/0, 31-32=0/1907, 29-30=0/907, 20-22=-1495/0, 24-25=-683/0, 22-24=0/3569, 25-27=0/1452, 9-41=-35/825, 8-42=-9/586, 11-43=-2225/171, 10-44=-52/1209, 15-18=-392/7575, 20-21=0/2263, 14-19=-374/7115, 6-48=-11044/695, 42-48=-10190/645, 41-42=-10917/642, 41-44=-10917/642, 43-44=-16691/1010, 43-47=-13758/858, 13-47=-14153/879, 4-37=-759/157, 5-37=-2516/129, 3-39=-5294/376, 3-37=-242/4856, 2-39=-701/13207, 12-47=-145/2478, 9-42=-2105/238, 12-43=-2985/155, 28-29=-220/0, 26-27=-301/0, 5-36=-128/2019, 7-48=-122/2110, 7-42=-241/115, 11-44=-231/2845, 9-44=-3355/207	
BRACING			
TOP CHORD	Structural wood sheathing directly applied or 3-1-0 oc purlins, except end verticals, and 2-0-0 oc purlins (6-0-0 max.): 7-12.		
BOT CHORD	Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 32-35,30-32,28-30,26-28,25-26,22-25.		
JOINTS	1 Brace at Jt(s): 35, 41, 42, 43, 44		
REACTIONS	(size) 16=20-5-8, 17=20-5-8, 18=20-5-8, 19=20-5-8, 40=0-5-8, 49=20-5-8		
	Max Horiz 40=181 (LC 10)		
	Max Uplift 16=151 (LC 13), 17=-324 (LC 12), 18=240 (LC 13), 19=-10327 (LC 46), 40=693 (LC 12), 49=151 (LC 13)		
	Max Grav 16=3016 (LC 46), 17=7173 (LC 23), 18=4174 (LC 46), 19=1030 (LC 12), 40=11884 (LC 46), 49=3016 (LC 46)		
FORCES	(lb) - Maximum Compression/Maximum Tension		

- NOTES**
- 1) 4-ply truss to be connected together with 10d (0.131"x3") nails as follows:  
Top chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
Web connected as follows: 2x6 - 2 rows staggered at 0-4-0 oc, Except member 36-45 2x6 - 3 rows staggered at 0-4-0 oc, member 13-19 2x6 - 2 rows staggered at 0-9-0 oc, 2x4 - 1 row at 0-9-0 oc.  
Attach BC w/ 1/2" diam. bolts (ASTM A-307) in the center of the member w/washers at 4-0-0 oc.
  - 2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
  - 3) Unbalanced roof live loads have been considered for this design.



April 2, 2024

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/TPH 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)



818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH	I64619669
24030135	A05	Attic Girder	1	4	Job Reference (optional)	

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:46

Page: 2

ID:VIY0g5gMUgwQZRyxiBXYltzRA\_f-RfC?PsB70Hq3NSgPqnL8w3uTXbGKWrCDoi7J4zJC?f

- 4) Wind: ASCE 7-16; Vult=130mph (3-second gust)  
Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; 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
- 5) TCELL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- 6) Unbalanced snow loads have been considered for this design.
- 7) This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- 8) Provide adequate drainage to prevent water ponding.
- 9) All plates are MT20 plates unless otherwise indicated.
- 10) All plates are 4x5 MT20 unless otherwise indicated.
- 11) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 12) \* 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.
- 13) Ceiling dead load (5.0 psf) on member(s). 6-48, 42-48, 41-42, 41-44, 43-44, 43-47, 13-47; Wall dead load (5.0psf) on member(s).6-35, 13-21
- 14) Bottom chord live load (40.0 psf) and additional bottom chord dead load (5.0 psf) applied only to room. 32-35, 30-32, 28-30, 26-28, 25-26, 22-25, 21-22
- 15) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 10327 lb uplift at joint 19.
- 16) LGT4-SDS3 Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 40. This connection is for uplift only and does not consider lateral forces.
- 17) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 16, 18, and 17. This connection is for uplift only and does not consider lateral forces.
- 18) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- 19) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
- 20) This truss has large uplift reaction(s) from gravity load case(s). Proper connection is required to secure truss against upward movement at the bearings. Building designer must provide for uplift reactions indicated.
- 21) LGT4 Hurricane ties must have four studs in line below the truss.
- 22) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 608 lb down and 52 lb up at 28-7-12, and 9100 lb down and 774 lb up at 16-0-12 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- 23) Attic room checked for L/360 deflection.

**LOAD CASE(S)** Standard

- 1) Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-2=-60, 2-7=-60, 7-12=-60, 12-16=-60, 40-49=-20, 21-35=-30, 6-48=-10, 42-48=-10, 41-42=-10, 41-46=-10, 44-46=-10, 43-44=-10, 43-47=-10, 13-47=-10  
Drag: 35-45=-10, 6-45=-10, 13-21=-10  
Concentrated Loads (lb)  
Vert: 36=-4881 (F), 60=-326 (F)

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



818 Soundside Road  
Edenton, NC 27932

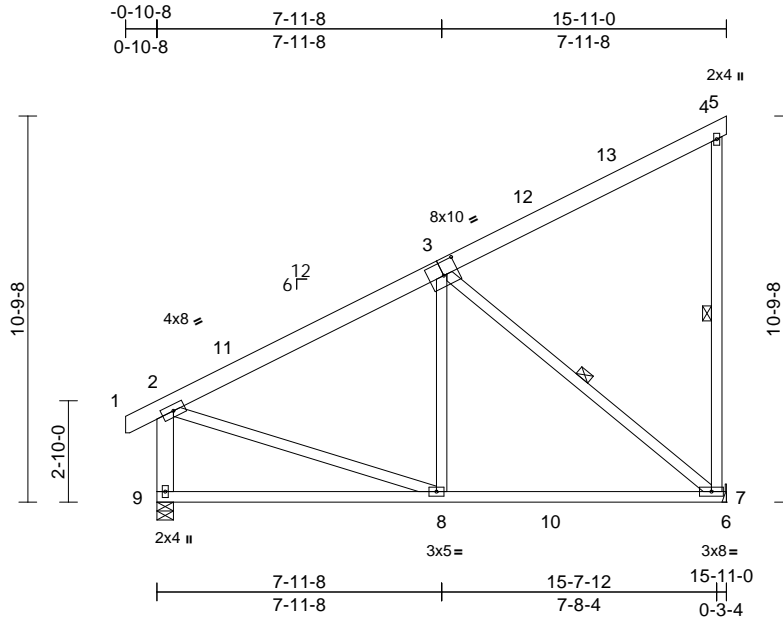


Job 24030135	Truss G01	Truss Type Monopitch	Qty 5	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619670
-----------------	--------------	-------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID: PdAAD85\_ICJN?UaWrZnF5zRQu2-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:64.4

Plate Offsets (X, Y): [3:0-5-0,0-4-8]

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	0.49	Vert(LL)	-0.12	7-8	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.66	Vert(CT)	-0.20	7-8	>909	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.36	Horz(CT)	-0.01	7	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 123 lb	FT = 20%

**LUMBER**

TOP CHORD 2x6 SP No.2  
 BOT CHORD 2x4 SP No.2  
 WEBS 2x4 SP No.3 \*Except\* 9-2:2x6 SP No.2

**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.  
 WEBS 1 Row at midpt 4-7, 3-7

**REACTIONS**

(size) 7= Mechanical, 9=0-5-8  
 Max Horiz 9=271 (LC 14)  
 Max Uplift 7=219 (LC 14)  
 Max Grav 7=824 (LC 5), 9=750 (LC 5)

**FORCES**

(lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 4-7=-321/119, 2-9=-643/88, 1-2=0/28, 2-4=-674/91, 4-5=-12/0  
 BOT CHORD 8-9=-323/217, 7-8=-198/540, 6-7=0/0  
 WEBS 3-8=0/310, 3-7=-686/257, 2-8=0/486

**NOTES**

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-9-14 to 2-2-2, Interior (1) 2-2-2 to 12-11-0, Exterior(2E) 12-11-0 to 15-11-0 zone; cantilever left and right exposed; end vertical left exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.

- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Refer to girder(s) for truss to truss connections.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 219 lb uplift at joint 7.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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)



818 Soundside Road  
 Edenton, NC 27932



Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH	164619671
24030135	A01	Piggyback Base Supported Gable	1	1	Job Reference (optional)	

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:44  
ID:HvYYHe4LpHmiz2Dld9nw5TzRQov-RC?PsB70Hq3NSgPqnL8w3uITXbGKwKRCDoi7J4zJC?f

Page: 2

BOT CHORD 61-62=-87/181, 60-61=-87/181,  
59-60=-87/181, 58-59=-87/181,  
57-58=-87/181, 56-57=-87/181,  
55-56=-87/181, 53-55=-87/181,  
52-53=-87/181, 51-52=-87/181,  
50-51=-87/181, 49-50=-87/181,  
48-49=-87/181, 46-48=-87/181,  
45-46=-87/181, 44-45=-87/181,  
43-44=-87/181, 42-43=-87/181,  
40-42=-87/181, 39-40=-87/181,  
38-39=-87/181, 37-38=-87/181,  
36-37=-87/181, 35-36=-87/181,  
34-35=-87/181, 33-34=-87/181

WEBS 17-49=-176/57, 18-48=-178/62,  
19-46=-180/60, 20-45=-152/14,  
22-44=-171/10, 23-43=-191/88,  
24-42=-189/81, 25-40=-190/77,  
27-39=-181/77, 28-38=-132/77,  
29-37=-120/77, 30-36=-121/80,  
31-35=-113/103, 32-34=-149/155,  
16-50=-178/62, 15-51=-180/60,  
14-52=-152/8, 12-53=-174/0, 11-55=-195/88,  
10-56=-193/81, 9-57=-193/77, 7-58=-192/77,  
6-59=-148/77, 5-60=-122/90, 4-61=-120/162,  
3-62=-177/99

- 15) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.  
16) Warning: Additional permanent and stability bracing for truss system (not part of this component design) is always required.

**LOAD CASE(S)** Standard

#### NOTES

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner(3E) -0-9-14 to 4-6-8, Exterior(2N) 4-6-8 to 12-4-3, Corner(3R) 12-4-3 to 22-11-13, Exterior(2N) 22-11-13 to 26-1-3, Corner(3R) 26-1-3 to 36-6-8, Exterior(2N) 36-6-8 to 47-10-3, Corner(3E) 47-10-3 to 53-2-0 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) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- 4) TLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- 5) Unbalanced snow loads have been considered for this design.
- 6) This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- 7) Provide adequate drainage to prevent water ponding.
- 8) All plates are 2x4 MT20 unless otherwise indicated.
- 9) Gable requires continuous bottom chord bearing.
- 10) Gable studs spaced at 2-0-0 oc.
- 11) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 12) \* 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.
- 13) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 33 lb uplift at joint 62, 25 lb uplift at joint 49, 28 lb uplift at joint 48, 29 lb uplift at joint 46, 51 lb uplift at joint 43, 46 lb uplift at joint 42, 43 lb uplift at joint 40, 44 lb uplift at joint 39, 44 lb uplift at joint 38, 43 lb uplift at joint 37, 47 lb uplift at joint 36, 28 lb uplift at joint 35, 96 lb uplift at joint 34, 28 lb uplift at joint 50, 28 lb uplift at joint 51, 53 lb uplift at joint 55, 46 lb uplift at joint 56, 43 lb uplift at joint 57, 44 lb uplift at joint 58, 45 lb uplift at joint 59, 27 lb uplift at joint 60, 116 lb uplift at joint 61, 36 lb uplift at joint 33 and 36 lb uplift at joint 33.
- 14) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



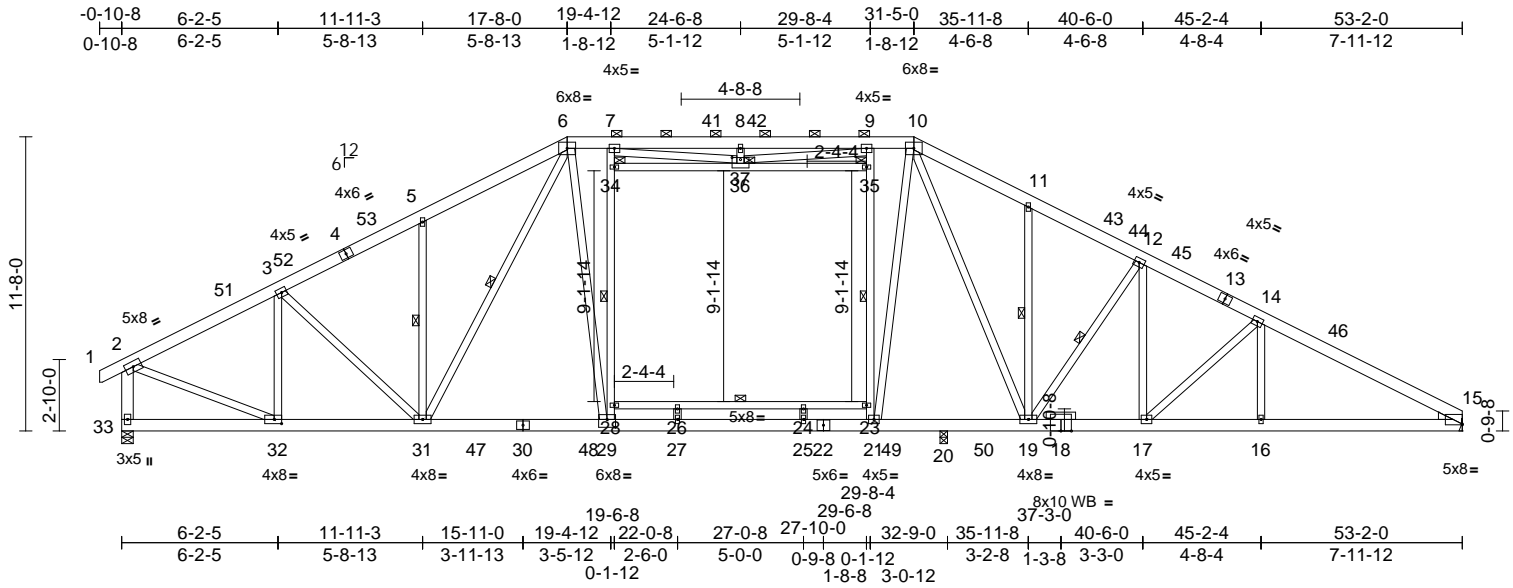
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A03	Truss Type Piggyback Base	Qty 8	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619672
-----------------	--------------	------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:45  
ID:OFJfX3IDTxFbWWzRbXohbzzRCTM-RfC?PsB70Hq3NSgPqnL8w3uITXbGKwRcDoi7J4zJC7f

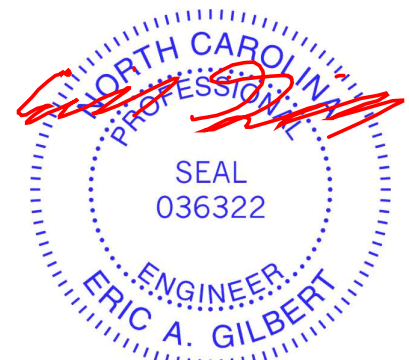
Page: 1



Scale = 1:91.4  
Plate Offsets (X, Y): [15:Edge,0-0-7], [29:0-4-0,0-3-12], [32:0-3-8,0-2-0], [36:0-4-0,0-1-0]

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	0.64	Vert(LL)	-0.35	24-26	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.65	Vert(CT)	-0.66	24-26	>586	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.85	Horz(CT)	0.10	15	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 503 lb	FT = 20%

- LUMBER**
- TOP CHORD 2x6 SP No.2
- BOT CHORD 2x6 SP 2400F 2.0E \*Except\* 28-23:2x4 SP No.2
- WEBS 2x4 SP No.3 \*Except\* 33-2:2x6 SP No.2, 2-32:2x4 SP No.2
- OTHERS 2x4 SP No.3
- WEDGE Right: 2x4 SP No.3
- BRACING**
- TOP CHORD Structural wood sheathing directly applied or 3-3-2 oc purlins, except end verticals, and 2-0-0 oc purlins (3-5-3 max.): 6-10.
- BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing, Except: 6-0-0 oc bracing: 26-28,24-26,23-24.
- WEBS 1 Row at midpt 5-31, 11-19, 12-19, 6-31, 29-34, 21-35
- JOINTS 1 Brace at Jt(s): 34, 35, 36
- REACTIONS** (size) 15= Mechanical, 20=0-3-8, 33=0-5-8
- Max Horiz 33=187 (LC 12)
- Max Uplift 20=198 (LC 15), 33=116 (LC 14)
- Max Grav 15=2251 (LC 45), 20=1009 (LC 37), 33=2651 (LC 35)
- FORCES** (lb) - Maximum Compression/Maximum Tension
- TOP CHORD 6-7=2920/122, 7-8=3232/324, 8-9=3296/330, 9-10=2899/120, 10-11=3273/209, 11-12=3263/144, 12-14=3751/109, 14-15=4061/100, 2-33=2537/142, 1-2=0/28, 2-3=2976/118, 3-5=3373/163, 5-6=3396/284
- BOT CHORD 32-33=-114/231, 31-32=-133/2600, 29-31=0/2776, 27-29=0/2966, 25-27=0/2966, 21-25=0/2966, 20-21=0/2701, 19-20=0/2701, 17-19=0/3313, 16-17=-1/3535, 15-16=-57/3535, 26-28=-92/37, 24-26=-92/37, 23-24=-92/37
- WEBS 24-25=-224/0, 14-16=0/165, 26-27=-218/0, 3-32=-828/106, 5-31=-591/201, 3-31=0/521, 12-17=-73/649, 14-17=-364/187, 11-19=-453/167, 12-19=-878/180, 2-32=-21/2696, 6-31=-296/536, 10-19=-233/588, 28-29=-546/206, 28-34=-499/226, 7-34=-483/224, 21-23=-924/201, 23-35=-884/224, 9-35=-869/221, 6-29=0/1182, 34-36=-11/46, 35-36=-124/16, 36-37=-31/5, 8-37=-221/83, 7-37=-346/652, 9-37=-294/825, 10-21=0/1411
- NOTES**
- Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-9-14 to 4-5-15, Interior (1) 4-5-15 to 10-1-12, Exterior(2R) 10-1-12 to 38-11-4, Interior (1) 38-11-4 to 47-10-3, Exterior(2E) 47-10-3 to 53-2-0 zone; end vertical left exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - 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 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- 6) 200.0lb AC unit load placed on the bottom chord, 24-6-8 from left end, supported at two points, 5-0-0 apart.
- 7) Provide adequate drainage to prevent water ponding.
- 8) All plates are 2x4 MT20 unless otherwise indicated.
- 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, with BCDL = 10.0psf.
- 11) Refer to girder(s) for truss to truss connections.
- 12) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 33 and 20. This connection is for uplift only and does not consider lateral forces.
- 13) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.



April 2, 2024

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/TPI1 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)



818 Soundside Road  
Edenton, NC 27932



Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH
24030135	A03	Piggyback Base	8	1	I64619672 Job Reference (optional)

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:45  
ID:OFJfX3IDTxFbWWzrBXohbzzRCTM-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrcDoi7J4zJC?f

Page: 2

14) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

**LOAD CASE(S)** Standard

**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/TP1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



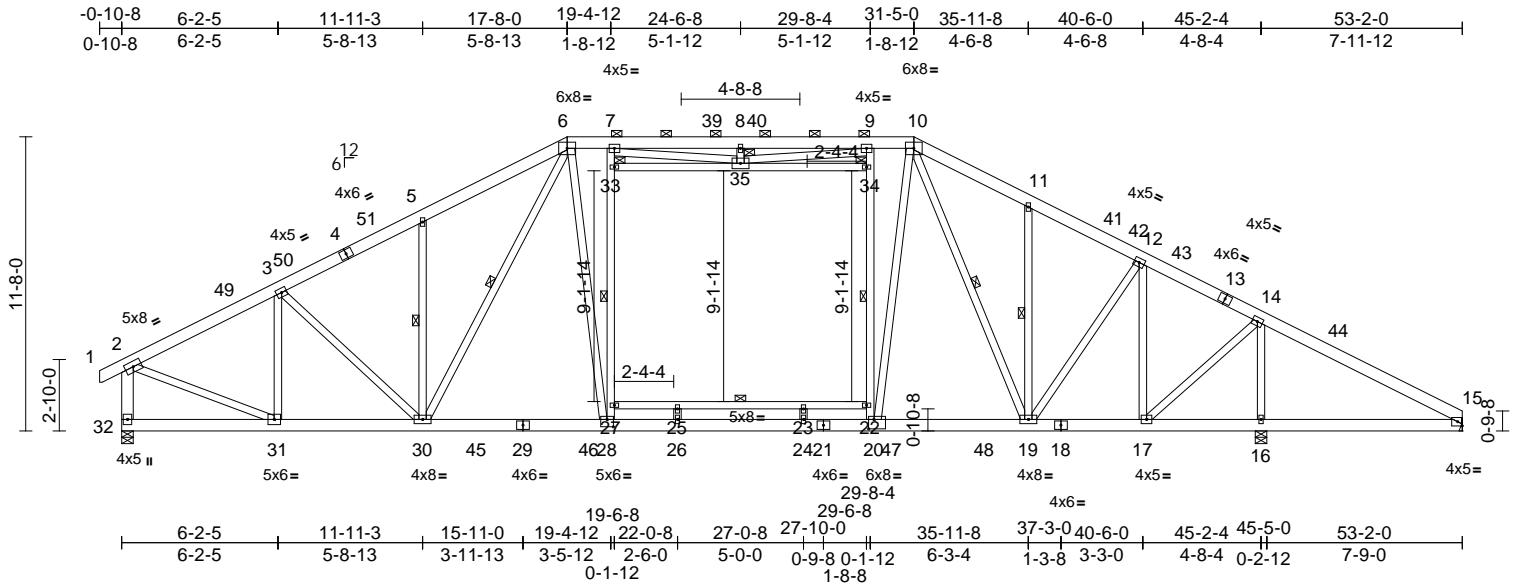
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A04	Truss Type Piggyback Base	Qty 3	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619673
-----------------	--------------	------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:46  
ID: DGN6a6f8caCKWpHw1clz1BzRCZx-RfC?PsB70Hq3NSgPqnl8w3u1TXbGKWRCDoi7J4zJC?f

Page: 1



Scale = 1:91.4

Plate Offsets (X, Y): [20:0-2-8,0-4-8], [28:0-3-0,0-3-8]

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	0.63	Vert(LL)	-0.33	25-27	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.64	Vert(CT)	-0.59	23-25	>911	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.99	Horz(CT)	0.09	15	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											

Weight: 500 lb FT = 20%

**LUMBER**  
TOP CHORD 2x6 SP No.2  
BOT CHORD 2x6 SP No.2 \*Except\* 18-21,21-29:2x6 SP  
2400F 2.0E, 27-22:2x4 SP No.2  
WEBS 2x4 SP No.3 \*Except\* 32-2:2x6 SP No.2,  
2-31:2x4 SP No.2

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or  
3-10-10 oc purlins, except end verticals, and  
2-0-0 oc purlins (3-6-1 max.): 6-10;  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc  
bracing, Except:  
6-0-0 oc bracing: 25-27,23-25,22-23.  
WEBS 1 Row at midpt 5-30, 6-30, 11-19, 10-19,  
28-33, 20-34

**JOINTS**  
1 Brace at Jt(s): 33,  
34, 35

**REACTIONS** (size) 15= Mechanical, 16=0-5-8,  
32=0-5-8  
Max Horiz 32=187 (LC 12)  
Max Uplift 15=-195 (LC 14), 16=-302 (LC 15),  
32=-99 (LC 14)  
Max Grav 15=939 (LC 35), 16=2635 (LC 37),  
32=2582 (LC 35)

**FORCES** (lb) - Maximum Compression/Maximum  
Tension  
TOP CHORD 6-7=-2840/126, 7-8=-3210/337,  
8-9=-3210/337, 9-10=-2817/126,  
10-11=-2820/228, 11-12=-2803/135,  
12-14=-2435/223, 14-15=-1543/447,  
2-32=-2470/140, 1-2=0/28, 2-3=-2892/97,  
3-5=-3271/136, 5-6=-3294/257

**BOT CHORD** 31-32=-113/225, 30-31=-114/2524,  
28-30=0/2707, 26-28=0/2873, 24-26=0/2873,  
20-24=0/2873, 19-20=0/2564,  
17-19=-81/2143, 16-17=-334/1326,  
15-16=-334/1326, 25-27=-76/34,  
23-25=-76/34, 22-23=-76/34  
**WEBS** 25-26=-209/0, 23-24=-245/0,  
14-16=-2328/328, 2-31=-3/2621,  
3-31=-806/99, 3-30=0/512, 5-30=-592/201,  
6-30=-306/594, 14-17=-68/1854,  
12-17=-1110/146, 12-19=-25/780,  
11-19=-468/168, 10-19=-567/0,  
27-28=-550/251, 27-33=-505/274,  
7-33=-490/270, 20-22=-883/224,  
22-34=-861/245, 9-34=-840/242,  
6-28=0/1154, 33-35=-39/79, 34-35=-171/35,  
8-35=-234/82, 7-35=-320/698,  
9-35=-294/814, 10-20=0/1807

**NOTES**  
1) Unbalanced roof live loads have been considered for this design.  
2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-9-14 to 4-5-15, Interior (1) 4-5-15 to 10-1-12, Exterior(2R) 10-1-12 to 38-11-4, Interior (1) 38-11-4 to 47-10-3, Exterior(2E) 47-10-3 to 53-2-0 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); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10  
4) Unbalanced snow loads have been considered for this design.

- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- 200.0lb AC unit load placed on the bottom chord, 24-6-8 from left end, supported at two points, 5-0-0 apart.
- Provide adequate drainage to prevent water ponding.
- All plates are 2x4 MT20 unless otherwise indicated.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Refer to girder(s) for truss to truss connections.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 195 lb uplift at joint 15.
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 32 and 16. This connection is for uplift only and does not consider lateral forces.



April 2, 2024

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)



818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss A04	Truss Type Piggyback Base	Qty 3	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619673
-----------------	--------------	------------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:46  
ID:DGN6a6f8caCKWpHw1clz1BzRCZx-RfC?PsB70Hq3NSgPqnL8w3uiTXbGKWrCDoi7J4zJC?f

Page: 2

- 14) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- 15) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

**LOAD CASE(S)** Standard

**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/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute ([www.tpinst.org](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))



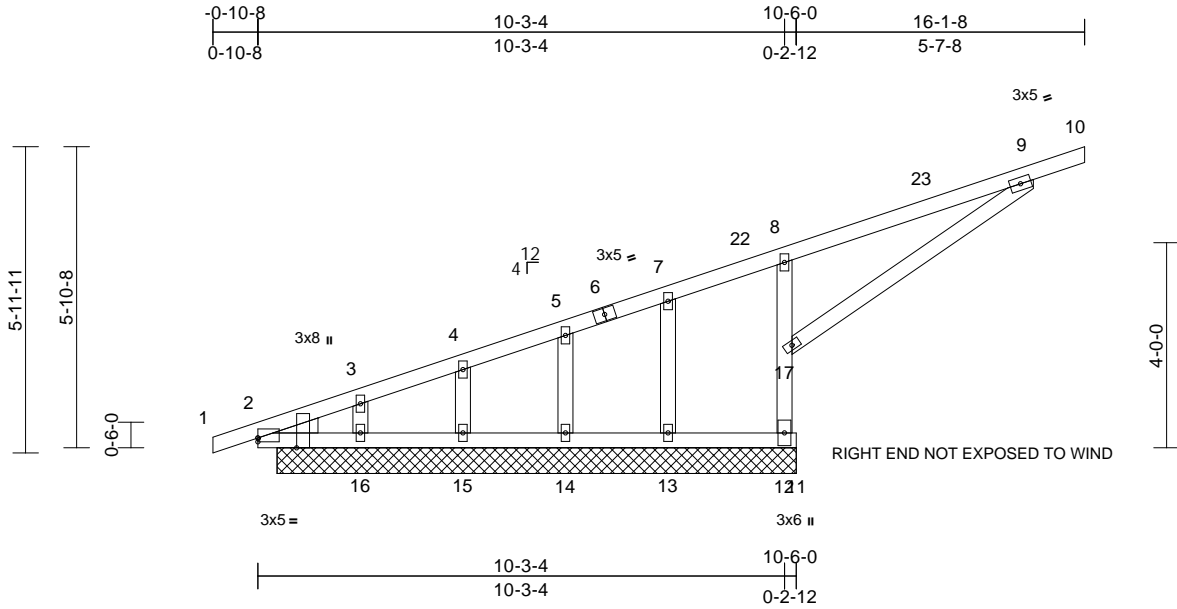
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss H01	Truss Type Monopitch Supported Gable	Qty 2	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619674
-----------------	--------------	---	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:kX6Xm09Jsm8Rk\_RkgNonK3zRRGV-RfC?PsB70Hq3NSgPqnL8w3uTXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:44.9

Plate Offsets (X, Y): [2:Edge,0-0-14], [2:0-2-5,Edge]

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)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.21	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.69	Horz(CT)	-0.01	2	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
										Weight: 67 lb	FT = 20%	

**LUMBER**

TOP CHORD	2x4 SP No.2
BOT CHORD	2x4 SP No.2
WEBS	2x4 SP 2400F 2.0E *Except* 17-9:2x4 SP No.3
OTHERS	2x4 SP No.3
WEDGE	Left: 2x4 SP No.3

**BRACING**

TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins.
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing, Except: 10-0-0 oc bracing: 11-12.

<b>REACTIONS</b> (size)	2=10-1-8, 12=10-1-8, 13=10-1-8, 14=10-1-8, 15=10-1-8, 16=10-1-8, 21=10-1-8
Max Horiz	2=210 (LC 10), 21=210 (LC 10)
Max Uplift	2=-3 (LC 14), 12=-264 (LC 14), 13=-11 (LC 21), 14=-26 (LC 10), 15=-155 (LC 14), 21=-3 (LC 14)
Max Grav	2=1 (LC 21), 12=893 (LC 21), 13=98 (LC 7), 14=202 (LC 21), 15=171 (LC 21), 16=253 (LC 1), 21=1 (LC 21)

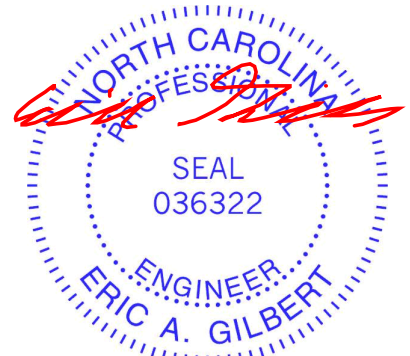
**FORCES** (lb) - Maximum Compression/Maximum Tension

TOP CHORD	1-2=0/17, 2-3=-535/377, 3-4=-531/378, 4-5=-474/378, 5-7=-435/359, 7-8=-437/432, 8-9=-579/743, 9-10=-29/0
BOT CHORD	2-16=-339/244, 15-16=-339/244, 14-15=-339/244, 13-14=-339/244, 12-13=-339/244, 11-12=0/0
WEBS	12-17=-870/552, 8-17=-396/210, 9-17=-810/584, 3-16=-153/3, 4-15=-120/154, 5-14=-167/99, 7-13=-29/60

**NOTES**

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-10-8 to 2-0-0, Interior (1) 2-0-0 to 13-1-8, Exterior(2E) 13-1-8 to 16-1-8 zone; cantilever left and right exposed; end vertical left exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 3 lb uplift at joint 2, 264 lb uplift at joint 12, 155 lb uplift at joint 15, 26 lb uplift at joint 14, 11 lb uplift at joint 13 and 3 lb uplift at joint 2.
- Non Standard bearing condition. Review required.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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)



818 Soundside Road  
Edenton, NC 27932



Job 24030135	Truss H02	Truss Type Monopitch	Qty 6	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619675
-----------------	--------------	-------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:nLPVeuW3K4TytrtY3LLGuzRRHK-RfC?PsB70Hq3NSgPqnL8w3uITXbGKwRcDoi7J4zJC7f

Page: 1

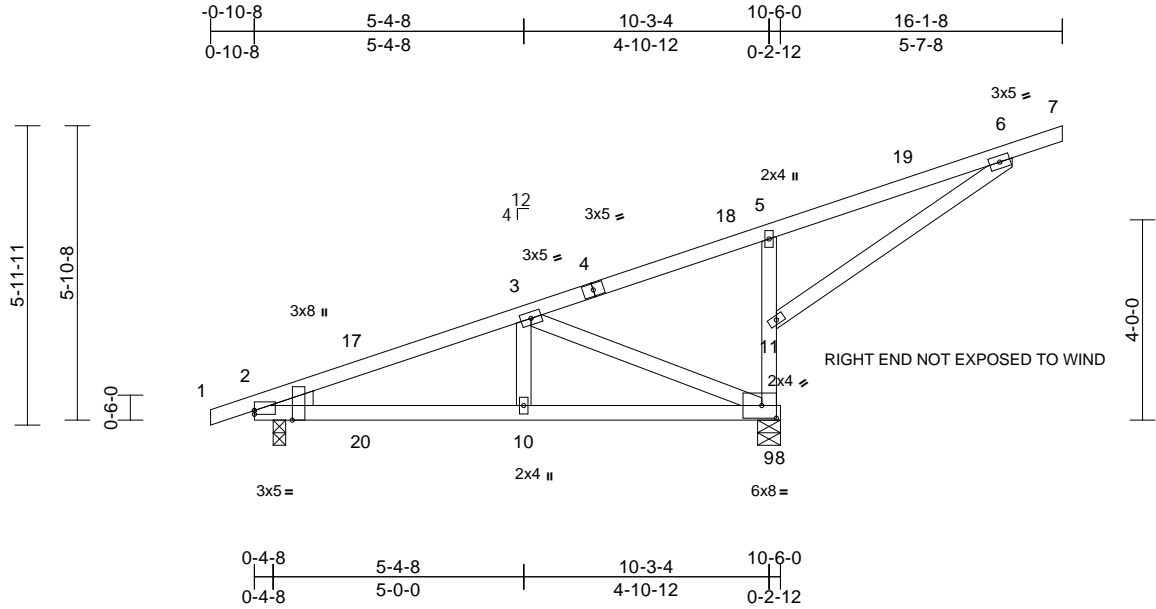


Plate Offsets (X, Y): [2:Edge,0-0-14], [2:0-2-5,Edge], [9:0-3-8,0-3-0]

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	0.71	Vert(LL)	0.04	9-10	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.27	Vert(CT)	-0.04	9-10	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.71	Horz(CT)	-0.01	9	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 67 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
WEBS 2x4 SP No.3 \*Except\* 5-9:2x4 SP 2400F 2.0E  
WEDGE Left: 2x4 SP No.3

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 8-5-13 oc bracing.

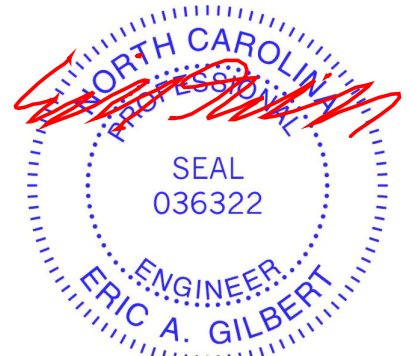
**REACTIONS** (size) 2=0-3-0, 9=0-5-8  
Max Horiz 2=210 (LC 10)  
Max Uplift 2=-99 (LC 10), 9=-379 (LC 20)  
Max Grav 2=379 (LC 1), 9=1090 (LC 21)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/17, 2-3=-368/225, 3-5=-447/428, 5-6=-594/757, 6-7=-29/0  
BOT CHORD 2-10=-447/338, 9-10=-447/338, 8-9=0/0  
WEBS 9-11=-840/532, 5-11=-358/182, 3-10=-315/219, 3-9=-563/753, 6-11=-825/599

- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 9 and 2. This connection is for uplift only and does not consider lateral forces.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard

- NOTES**
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-10-8 to 2-1-8, Interior (1) 2-1-8 to 13-1-8, Exterior(2E) 13-1-8 to 16-1-8 zone; cantilever left exposed ; porch left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - Unbalanced snow loads have been considered for this design.



April 2, 2024

**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/TPI1 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)



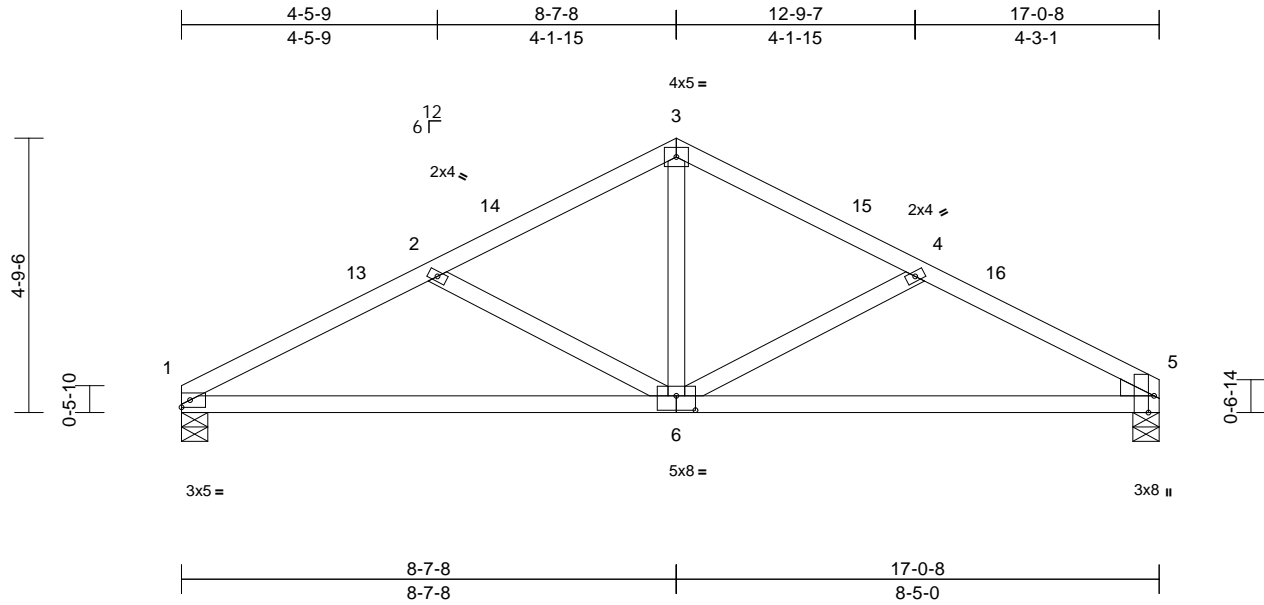
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss J01	Truss Type Common	Qty 5	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619676
-----------------	--------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:yPXMLbyKekkHSiWSIZLGINzRR58-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKWRCDoi7J4zJC?f

Page: 1



Scale = 1:40.2

Plate Offsets (X, Y): [5:0-3-8,Edge], [6:0-4-0,0-3-0]

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	0.37	Vert(LL)	-0.09	6-9	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.65	Vert(CT)	-0.19	6-9	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.21	Horz(CT)	0.02	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 75 lb	FT = 20%

**LUMBER**

TOP CHORD 2x4 SP No.2  
 BOT CHORD 2x4 SP No.2  
 WEBS 2x4 SP No.3  
 WEDGE Right: 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 5-1-6 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS**

(size) 1=0-5-8, 5=0-5-8  
 Max Horiz 1=71 (LC 14)  
 Max Uplift 1=-66 (LC 14), 5=-64 (LC 15)  
 Max Grav 1=747 (LC 20), 5=746 (LC 21)

**FORCES**

(lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 1-2=-1263/310, 2-3=-883/233, 3-4=-875/232, 4-5=-1219/301  
 BOT CHORD 1-5=-223/1092  
 WEBS 3-6=-53/478, 4-6=-407/160, 2-6=-445/175

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-0 to 3-0-0, Interior (1) 3-0-0 to 5-7-8, Exterior(2R) 5-7-8 to 11-7-8, Interior (1) 11-7-8 to 14-0-8, Exterior(2E) 14-0-8 to 17-0-8 zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.

- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Bearings are assumed to be: , Joint 5 User Defined .
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 1 and 5. This connection is for uplift only and does not consider lateral forces.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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/TPH 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)



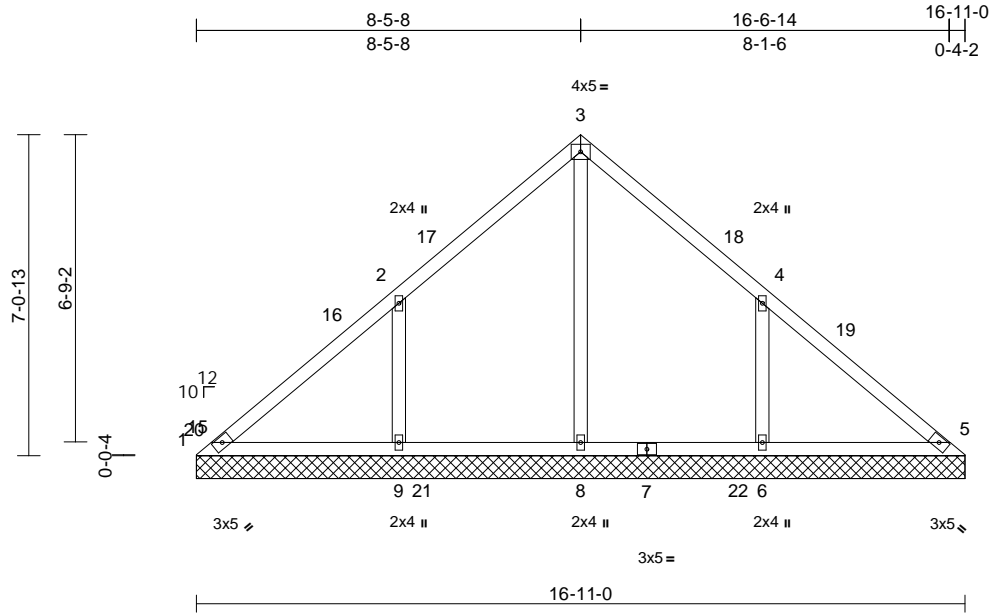
818 Soundside Road  
 Edenton, NC 27932

Job 24030135	Truss VLD1	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619677
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:?VRASUfm0qfd3oFPBHC5FHzRQud-RfC?PsB70Hq3NSgPqnL8w3uITXbGkWrCDoi7J4zJC?f

Page: 1



Scale = 1:50.7

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	0.39	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.18	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.41	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 76 lb	FT = 20%

**LUMBER**

- TOP CHORD 2x4 SP No.2
- BOT CHORD 2x4 SP No.2
- OTHERS 2x4 SP No.3

**BRACING**

- TOP CHORD Structural wood sheathing directly applied or 10-0-0 oc purlins.
- BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

- (size) 1=16-11-0, 5=16-11-0, 6=16-11-0, 8=16-11-0, 9=16-11-0, 14=16-11-0
- Max Horiz 1=-158 (LC 10)
- Max Uplift 1=-63 (LC 10), 6=-184 (LC 15), 9=-188 (LC 14)
- Max Grav 1=76 (LC 13), 5=1 (LC 24), 6=513 (LC 6), 8=657 (LC 23), 9=513 (LC 5), 14=1 (LC 24)

**FORCES**

- (lb) - Maximum Compression/Maximum Tension
- TOP CHORD 1-2=-104/374, 2-3=-24/322, 3-4=-1/301, 4-5=-143/294
- BOT CHORD 1-9=-183/75, 8-9=-183/75, 6-8=-183/75, 5-6=-183/75
- WEBS 3-8=-474/0, 2-9=-393/221, 4-6=-393/220

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-13 to 3-4-13, Interior (1) 3-4-13 to 5-5-13, Exterior(2R) 5-5-13 to 11-5-13, Interior (1) 11-5-13 to 13-11-5, Exterior(2E) 13-11-5 to 16-11-5 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

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 63 lb uplift at joint 1, 188 lb uplift at joint 9 and 184 lb uplift at joint 6.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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)



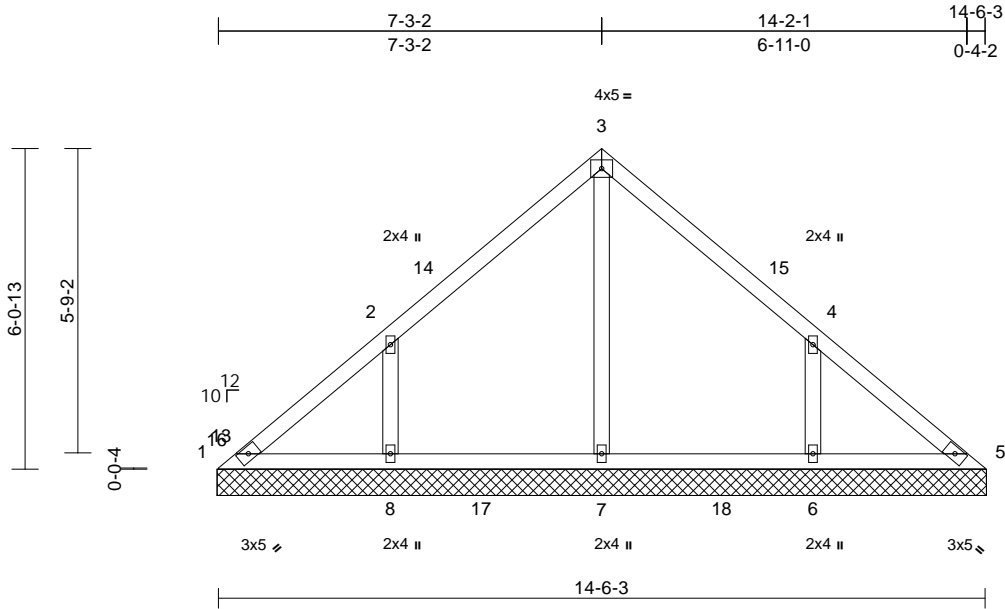
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLD2	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619678
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
ID:Th\_ZgqfOm8nUgyqbk?jKoVzRQuC-RfC?PsB70Hq3NSgPqnL8w3ulTXbGkWrCDoi7J4zJC?F

Page: 1



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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.16	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.15	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
										Weight: 63 lb	FT = 20%	

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

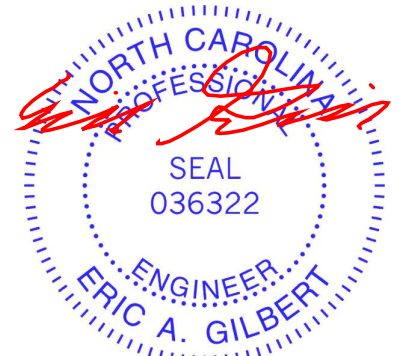
**REACTIONS** (size) 1=14-6-13, 5=14-6-13, 6=14-6-13, 7=14-6-13, 8=14-6-13  
Max Horiz 1=-137 (LC 10)  
Max Uplift 1=-29 (LC 10), 6=-155 (LC 15), 8=-156 (LC 14)  
Max Grav 1=107 (LC 24), 5=99 (LC 23), 6=457 (LC 21), 7=409 (LC 23), 8=455 (LC 20)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-142/146, 2-3=-173/122, 3-4=-172/112, 4-5=-123/111  
BOT CHORD 1-8=-62/119, 7-8=-62/101, 6-7=-62/101, 5-6=-62/101  
WEBS 3-7=-229/0, 2-8=-374/196, 4-6=-375/195

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 29 lb uplift at joint 1, 156 lb uplift at joint 8 and 155 lb uplift at joint 6.
- Beveled plate or shim required to provide full bearing surface with truss chord at joint(s) 1, 5.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard

- NOTES**
- Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-13 to 3-3-6, Interior (1) 3-3-6 to 4-3-6, Exterior(2R) 4-3-6 to 10-3-6, Interior (1) 10-3-6 to 11-3-6, Exterior(2E) 11-3-6 to 14-6-13 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



April 2, 2024

**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)



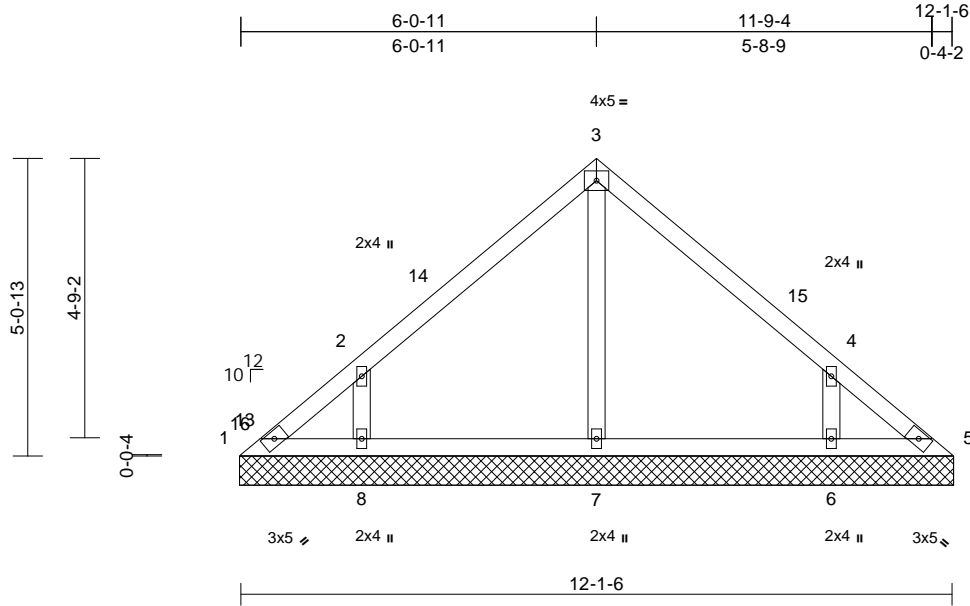
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLD3	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619679
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
ID:kUxM45s?bF21LX?KCRTFVazRQqU-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKwRcDoi7J4zJC?f

Page: 1



Scale = 1:39.3

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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.12	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.08	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 50 lb	FT = 20%

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS**

(size) 1=12-2-0, 5=12-2-0, 6=12-2-0, 7=12-2-0, 8=12-2-0  
Max Horiz 1=-114 (LC 10)  
Max Uplift 1=-37 (LC 10), 5=-4 (LC 11), 6=-136 (LC 15), 8=-137 (LC 14)  
Max Grav 1=78 (LC 24), 5=73 (LC 23), 6=435 (LC 21), 7=260 (LC 21), 8=432 (LC 20)

**FORCES**

(lb) - Maximum Compression/Maximum Tension

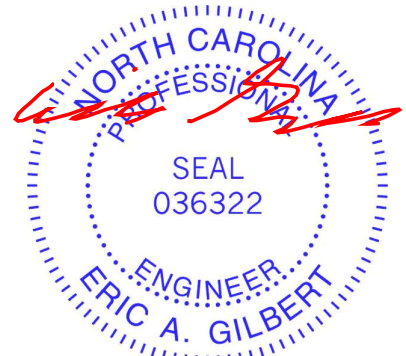
TOP CHORD 1-2=-113/100, 2-3=-217/117, 3-4=-217/117, 4-5=-92/63  
BOT CHORD 1-8=-32/74, 7-8=-32/73, 6-7=-32/73, 5-6=-32/73  
WEBS 3-7=-173/0, 2-8=-397/213, 4-6=-398/218

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-13 to 3-4-13, Exterior(2R) 3-4-13 to 9-2-0, Exterior(2E) 9-2-0 to 12-2-0 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

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 37 lb uplift at joint 1, 4 lb uplift at joint 5, 137 lb uplift at joint 8 and 136 lb uplift at joint 6.
- Beveled plate or shim required to provide full bearing surface with truss chord at joint(s) 1, 5.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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/TPI1 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)



818 Soundside Road  
Edenton, NC 27932

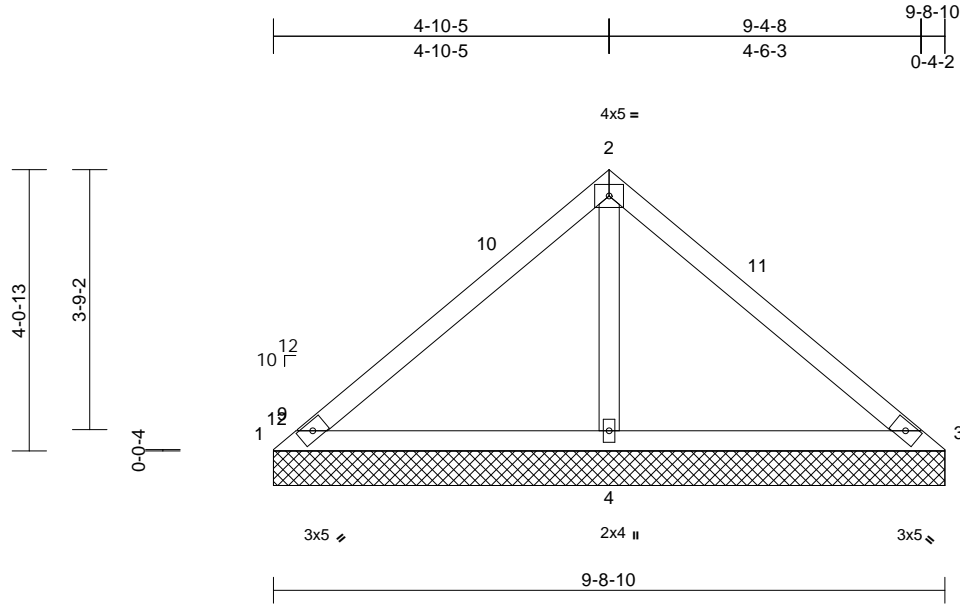


Job 24030135	Truss VLD4	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619680
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
ID:kUXM45s?bF21LX?KCRTFVazRQqU-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:33.3

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	0.46	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.43	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.19	Horiz(TL)	0.01	4	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH							
BCDL	10.0									Weight: 37 lb	FT = 20%

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 9-8-10 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

(size) 1=9-8-10, 3=9-8-10, 4=9-8-10  
Max Horiz 1=-90 (LC 10)  
Max Uplift 1=-60 (LC 21), 3=-50 (LC 20), 4=-108 (LC 14)  
Max Grav 1=74 (LC 20), 3=94 (LC 21), 4=780 (LC 20)

**FORCES**

(lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=-113/377, 2-3=-114/374  
BOT CHORD 1-4=-216/172, 3-4=-216/172  
WEBS 2-4=-602/269

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-13 to 3-4-13, Exterior(2R) 3-4-13 to 6-8-14, Exterior(2E) 6-8-14 to 9-8-14 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.

- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 60 lb uplift at joint 1, 50 lb uplift at joint 3 and 108 lb uplift at joint 4.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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

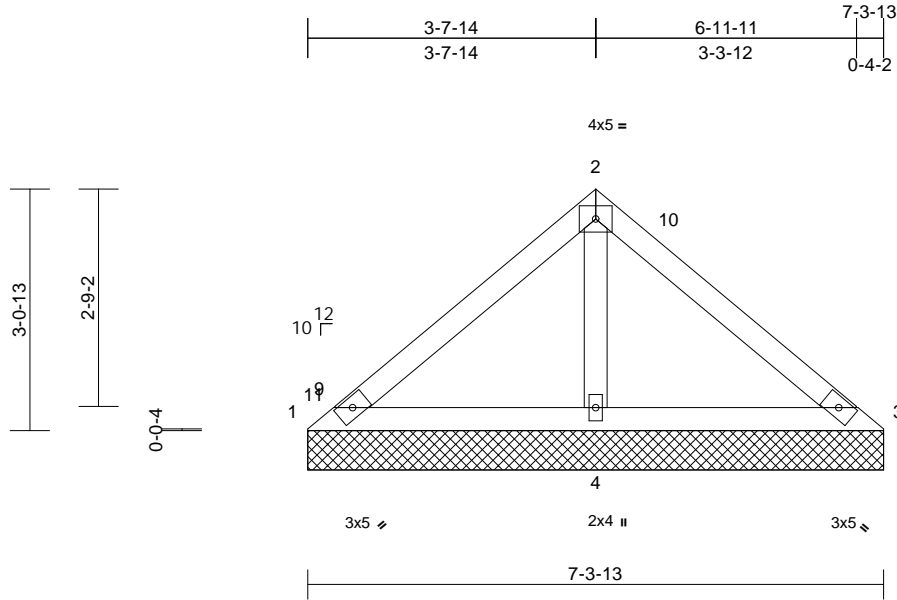
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLD5	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619681
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
ID:CgVkhRtdMZAuzhaXm9\_U1OzRQqT-RFC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:29.3

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	0.26	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.27	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.09	Horiz(TL)	0.00	4	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MP								
BCDL	10.0											
										Weight: 27 lb	FT = 20%	

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 7-3-13 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

(size) 1=7-3-13, 3=7-3-13, 4=7-3-13  
Max Horiz 1=-67 (LC 10)  
Max Uplift 1=-28 (LC 21), 3=-16 (LC 20),  
4=-73 (LC 14)  
Max Grav 1=72 (LC 20), 3=103 (LC 21),  
4=535 (LC 20)

**FORCES**

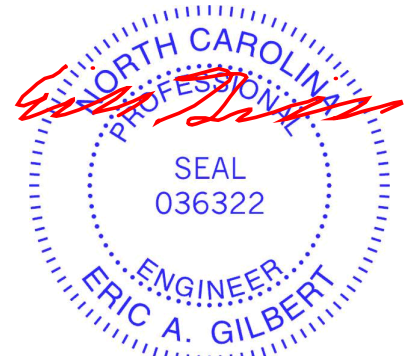
(lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-86/230, 2-3=-90/229  
BOT CHORD 1-4=-162/153, 3-4=-162/153  
WEBS 2-4=-382/196

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-13 to 3-8-3, Exterior(2R) 3-8-3 to 4-4-2, Exterior(2E) 4-4-2 to 7-4-2 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.

- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 28 lb uplift at joint 1, 16 lb uplift at joint 3 and 73 lb uplift at joint 4.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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)



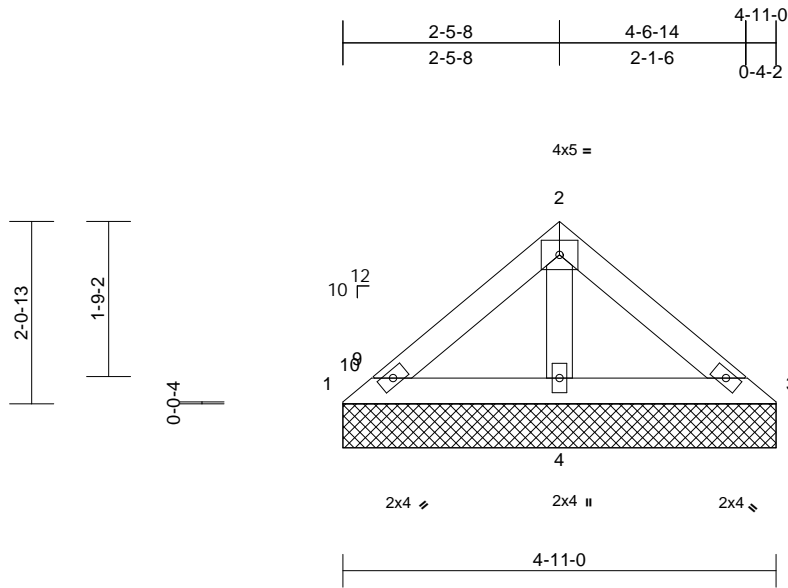
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLD6	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619682
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
ID:CgVkhRtdMZAuzhaXm9\_U1OzRQqT-RFC?PsB70Hq3NSgPqnL8w3uITXbGKwRCDoi7J4zJC?f

Page: 1



Scale = 1:26.2

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	0.09	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.11	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.04	Horiz(TL)	0.00	3	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MP								
BCDL	10.0											
										Weight: 18 lb	FT = 20%	

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 4-11-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

(size) 1=4-11-0, 3=4-11-0, 4=4-11-0  
Max Horiz 1=-44 (LC 10)  
Max Uplift 3=-7 (LC 15), 4=-31 (LC 14)  
Max Grav 1=59 (LC 20), 3=87 (LC 21), 4=294 (LC 20)

**FORCES**

(lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=-62/102, 2-3=-80/103  
BOT CHORD 1-4=-80/88, 3-4=-80/88  
WEBS 2-4=-182/97

**NOTES**

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 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) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- 4) TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10

- 5) Unbalanced snow loads have been considered for this design.
- 6) Gable requires continuous bottom chord bearing.
- 7) Gable studs spaced at 4-0-0 oc.
- 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) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 7 lb uplift at joint 3 and 31 lb uplift at joint 4.
- 11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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/TP1 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)



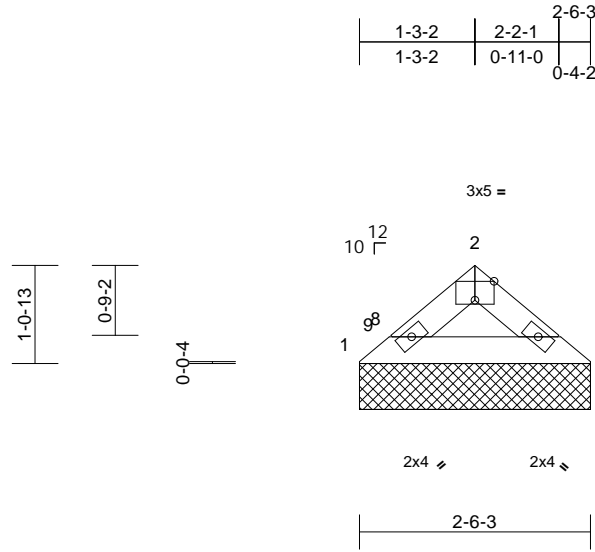
818 Soundside Road  
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	137 Serenity-Roof-B326 A COP GRH	I64619683
24030135	VLD7	Valley	1	1	Job Reference (optional)	

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:53  
 ID:CgVkhRtdMZAuzhaXm9\_U1OzRQqT-RFC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:25.1

Plate Offsets (X, Y): [2:0-2-8,Edge]

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	0.04	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.05	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.00	Horiz(TL)	0.00	3	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MP								
BCDL	10.0											
											Weight: 7 lb	FT = 20%

**LUMBER**  
 TOP CHORD 2x4 SP No.2  
 BOT CHORD 2x4 SP No.2

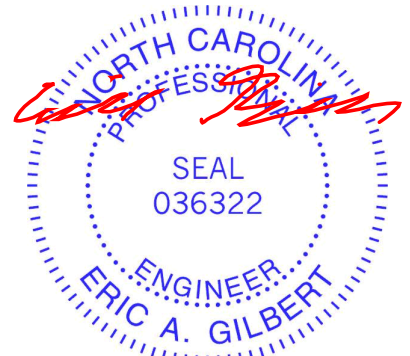
**BRACING**  
 TOP CHORD Structural wood sheathing directly applied or 2-6-3 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS** (size) 1=2-6-3, 3=2-6-3  
 Max Horiz 1=20 (LC 10)  
 Max Uplift 1=-1 (LC 15), 3=-8 (LC 15)  
 Max Grav 1=85 (LC 20), 3=109 (LC 21)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 1-2=-117/54, 2-3=-132/58  
 BOT CHORD 1-3=-31/95

- Gable studs spaced at 4-0-0 oc.
  - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - \* 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.
  - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 1 lb uplift at joint 1 and 8 lb uplift at joint 3.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- LOAD CASE(S)** Standard

- NOTES**
- Unbalanced roof live loads have been considered for this design.
  - Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 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
  - Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
  - Unbalanced snow loads have been considered for this design.
  - Gable requires continuous bottom chord bearing.



April 2, 2024

**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)



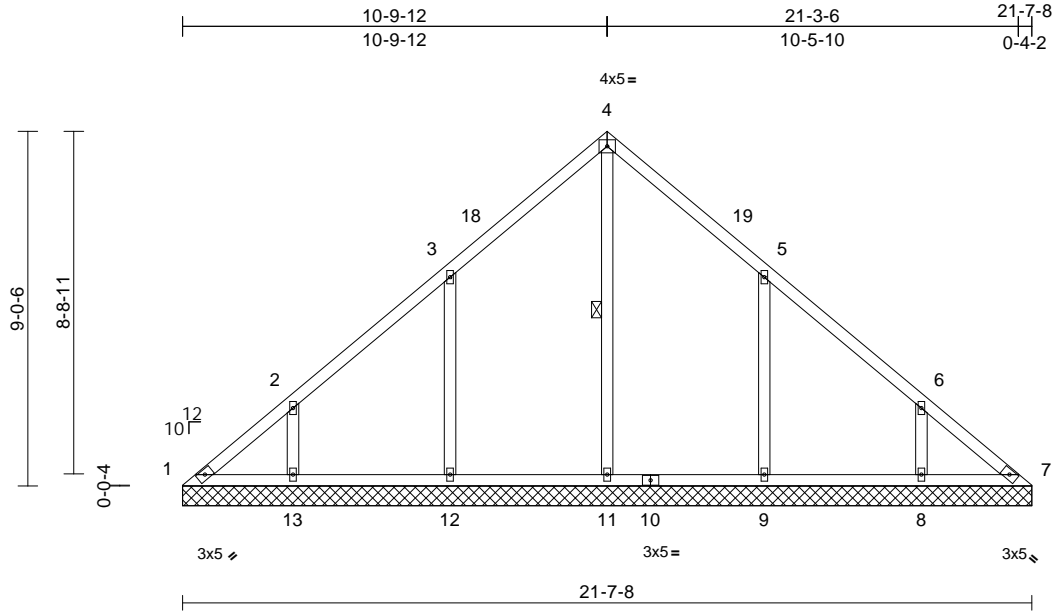
818 Soundside Road  
 Edenton, NC 27932

Job 24030135	Truss VLB1	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619684
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:uRu6rMLa1rlmrJyJNhjxpxzRQsR-RFC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:58.7

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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.17	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.21	Horiz(TL)	0.01	7	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 106 lb	FT = 20%

#### LUMBER

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

#### BRACING

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

WEBS 1 Row at midpt 4-11

**REACTIONS** (size) 1=21-7-8, 7=21-7-8, 8=21-7-8, 9=21-7-8, 11=21-7-8, 12=21-7-8, 13=21-7-8  
Max Horiz 1=208 (LC 13)  
Max Uplift 1=-49 (LC 10), 7=-1 (LC 11), 8=-115 (LC 15), 9=-174 (LC 15), 12=-173 (LC 14), 13=-120 (LC 14)  
Max Grav 1=149 (LC 24), 7=118 (LC 30), 8=365 (LC 24), 9=473 (LC 6), 11=417 (LC 26), 12=473 (LC 5), 13=370 (LC 23)

**FORCES** (lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=-211/175, 2-3=-164/132, 3-4=-187/184, 4-5=-187/157, 5-6=-115/83, 6-7=-166/107  
BOT CHORD 1-13=-79/161, 12-13=-79/161, 11-12=-79/161, 9-11=-79/161, 8-9=-79/161, 7-8=-79/161  
WEBS 4-11=-210/4, 3-12=-376/222, 2-13=-235/163, 5-9=-376/222, 6-8=-233/161

#### NOTES

1) Unbalanced roof live loads have been considered for this design.

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 2-10-1, Interior (1) 2-10-1 to 7-10-1, Exterior(2R) 7-10-1 to 13-10-1, Interior (1) 13-10-1 to 18-7-13, Exterior(2E) 18-7-13 to 21-7-13 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 49 lb uplift at joint 1, 1 lb uplift at joint 7, 173 lb uplift at joint 12, 120 lb uplift at joint 13, 174 lb uplift at joint 9 and 115 lb uplift at joint 8.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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

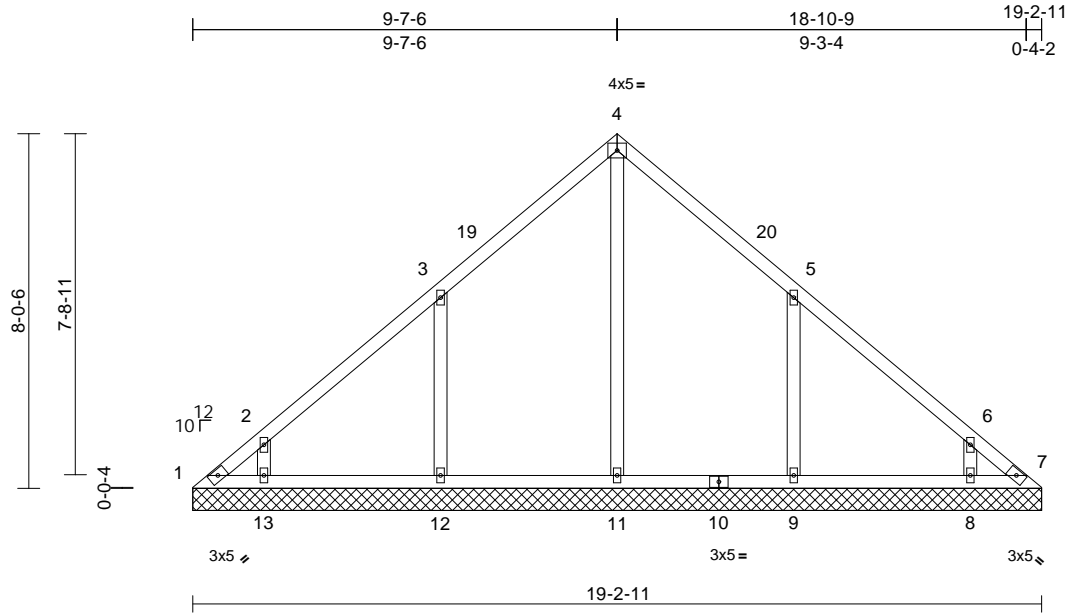


Job 24030135	Truss VLB2	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619685
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:yJln\_UX?VSB9dbBmLUS1zzRQsC-RfC?PsB70Hq3NSgPqnL8w3uTXbGKWrCD0i7J4zJC7f

Page: 1



Scale = 1:52.2

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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.17	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.29	Horiz(TL)	0.00	7	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0										Weight: 90 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS** (size)  
1=19-2-11, 7=19-2-11, 8=19-2-11,  
9=19-2-11, 11=19-2-11,  
12=19-2-11, 13=19-2-11,  
18=19-2-11  
Max Horiz 1=184 (LC 11)  
Max Uplift 1=-96 (LC 10), 8=-53 (LC 15),  
9=-193 (LC 15), 12=-174 (LC 14),  
13=-102 (LC 14)  
Max Grav 1=124 (LC 13), 7=0 (LC 13), 8=304  
(LC 28), 9=477 (LC 24), 11=463  
(LC 26), 12=480 (LC 5), 13=317  
(LC 23), 18=0 (LC 13)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-218/205, 2-3=-217/187, 3-4=-189/267,  
4-5=-178/241, 5-6=-107/66, 6-7=-72/43  
BOT CHORD 1-13=-45/64, 12-13=-18/55, 11-12=-18/55,  
9-11=-18/55, 8-9=-18/55, 7-8=-18/55  
WEBS 4-11=-256/59, 3-12=-379/222,  
2-13=-222/173, 5-9=-376/229, 6-8=-217/154

**NOTES**  
1) Unbalanced roof live loads have been considered for this design.

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-0-5, Interior (1) 3-0-5 to 6-7-10, Exterior(2R) 6-7-10 to 12-7-10, Interior (1) 12-7-10 to 16-3-0, Exterior(2E) 16-3-0 to 19-3-0 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 96 lb uplift at joint 1, 174 lb uplift at joint 12, 102 lb uplift at joint 13, 193 lb uplift at joint 9 and 53 lb uplift at joint 8.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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/TPI1 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

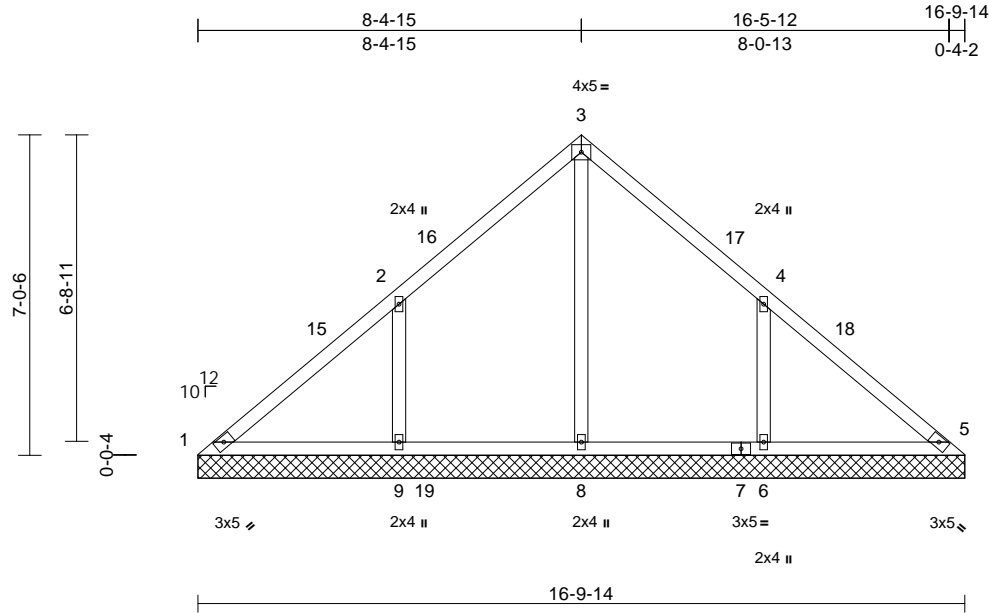
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLB3	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619686
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:4pahjxh9RSqoCd5h0aDV3jzRQs?-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC7f

Page: 1



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	0.38	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.18	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.41	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0										Weight: 75 lb	FT = 20%

LUMBER	
TOP CHORD	2x4 SP No.2
BOT CHORD	2x4 SP No.2
OTHERS	2x4 SP No.3
BRACING	
TOP CHORD	Structural wood sheathing directly applied or 10-0-0 oc purlins.
BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.
REACTIONS (size)	
	1=16-9-14, 5=16-9-14, 6=16-9-14, 8=16-9-14, 9=16-9-14, 14=16-9-14
Max Horiz	1=160 (LC 11)
Max Uplift	1=-58 (LC 10), 6=-183 (LC 15), 9=-188 (LC 14)
Max Grav	1=82 (LC 33), 5=1 (LC 24), 6=511 (LC 6), 8=654 (LC 23), 9=511 (LC 5), 14=1 (LC 24)
FORCES (lb) - Maximum Compression/Maximum Tension	
TOP CHORD	1-2=-105/370, 2-3=-25/319, 3-4=-2/298, 4-5=-139/290
BOT CHORD	1-9=-180/76, 8-9=-180/74, 6-8=-180/74, 5-6=-180/74
WEBS	3-8=-471/0, 2-9=-392/221, 4-6=-392/219

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 58 lb uplift at joint 1, 188 lb uplift at joint 9 and 183 lb uplift at joint 6.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

LOAD CASE(S) Standard

NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-0-5, Interior (1) 3-0-5 to 5-5-4, Exterior(2R) 5-5-4 to 11-5-4, Interior (1) 11-5-4 to 13-10-3, Exterior(2E) 13-10-3 to 16-10-3 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



April 2, 2024

**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)



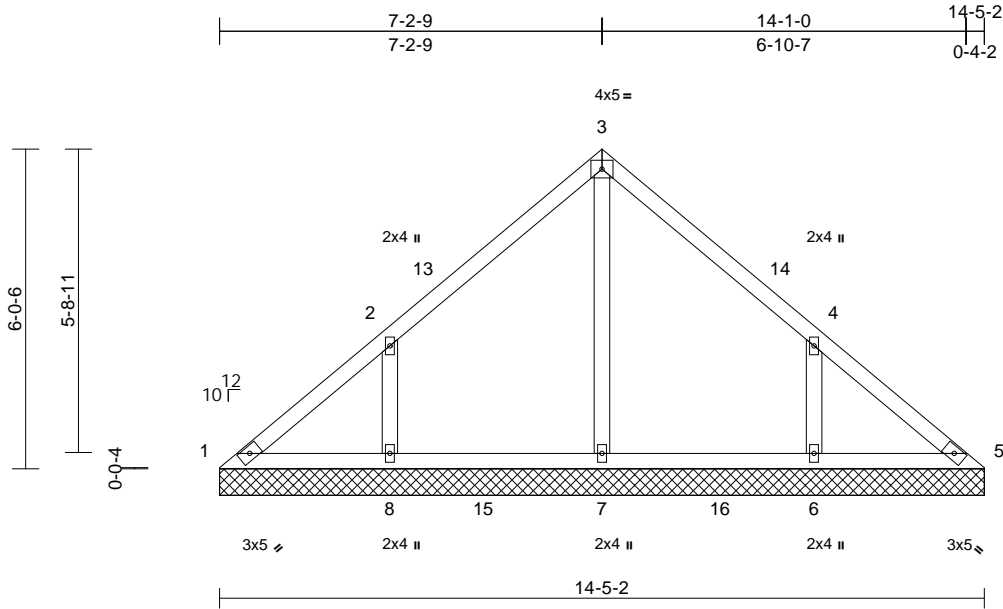
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLB4	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619687
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:CKtcSNrNSSyGdaBHoyY5SzRQro-RFC?PsB70Hq3NSgPqnL8w3uITXbGKWRcDcoi7J4zJC?f

Page: 1



Scale = 1:43.5

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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.16	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.14	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0										Weight: 62 lb	FT = 20%

**LUMBER**

- TOP CHORD 2x4 SP No.2
- BOT CHORD 2x4 SP No.2
- OTHERS 2x4 SP No.3

**BRACING**

- TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.
- BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

- (size) 1=14-5-2, 5=14-5-2, 6=14-5-2, 7=14-5-2, 8=14-5-2
- Max Horiz 1=-137 (LC 10)
- Max Uplift 1=-24 (LC 10), 6=-154 (LC 15), 8=-157 (LC 14)
- Max Grav 1=124 (LC 24), 5=99 (LC 23), 6=454 (LC 21), 7=403 (LC 23), 8=454 (LC 20)

**FORCES**

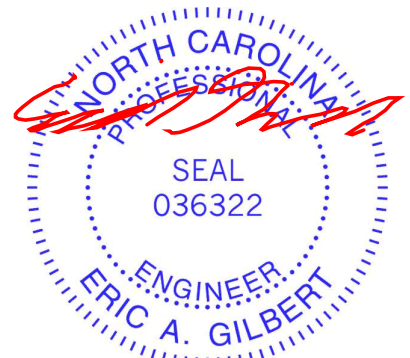
- (lb) - Maximum Compression/Maximum Tension
- TOP CHORD 1-2=-152/141, 2-3=-176/118, 3-4=-176/112, 4-5=-121/106
- BOT CHORD 1-8=-59/126, 7-8=-59/100, 6-7=-59/100, 5-6=-59/100
- WEBS 3-7=-224/0, 2-8=-375/196, 4-6=-375/195

**NOTES**

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-2-14, Interior (1) 3-2-14 to 4-2-14, Exterior(2R) 4-2-14 to 10-2-14, Interior (1) 10-2-14 to 11-2-14, Exterior(2E) 11-2-14 to 14-5-6 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

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 24 lb uplift at joint 1, 157 lb uplift at joint 8 and 154 lb uplift at joint 6.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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)



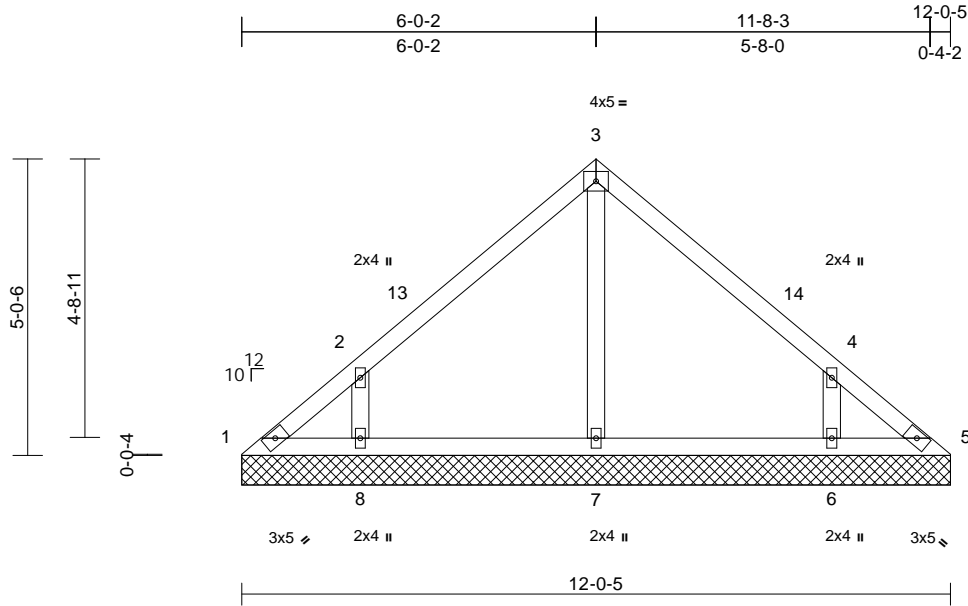
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLB5	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619688
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:vFTOYozalWjXT9L6tv8VZzRQre-RfC?PsB70Hq3NSgPqnL8w3uITxbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:39.1

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	0.31	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.12	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.08	Horiz(TL)	0.00	5	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
										Weight: 50 lb	FT = 20%	

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS**

(size) 1=12-0-5, 5=12-0-5, 6=12-0-5,  
7=12-0-5, 8=12-0-5  
Max Horiz 1=-114 (LC 10)  
Max Uplift 1=-34 (LC 10), 5=-6 (LC 11),  
6=-136 (LC 15), 8=-139 (LC 14)  
Max Grav 1=91 (LC 24), 5=70 (LC 23), 6=434  
(LC 21), 7=260 (LC 20), 8=434 (LC 20)

**FORCES**

(lb) - Maximum Compression/Maximum Tension

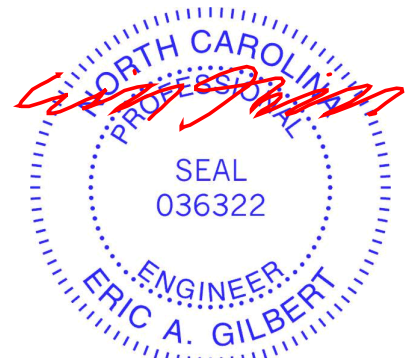
TOP CHORD 1-2=-114/101, 2-3=-218/115, 3-4=-218/115,  
4-5=-88/63  
BOT CHORD 1-8=-32/75, 7-8=-31/73, 6-7=-31/73,  
5-6=-31/73  
WEBS 3-7=-172/0, 2-8=-401/220, 4-6=-401/220

**NOTES**

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-0-5, Exterior(2R) 3-0-5 to 9-0-10, Exterior(2E) 9-0-10 to 12-0-10 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) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- 4) TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- 5) Unbalanced snow loads have been considered for this design.
- 6) Gable requires continuous bottom chord bearing.
- 7) Gable studs spaced at 4-0-0 oc.
- 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) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 34 lb uplift at joint 1, 6 lb uplift at joint 5, 139 lb uplift at joint 8 and 136 lb uplift at joint 6.
- 11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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

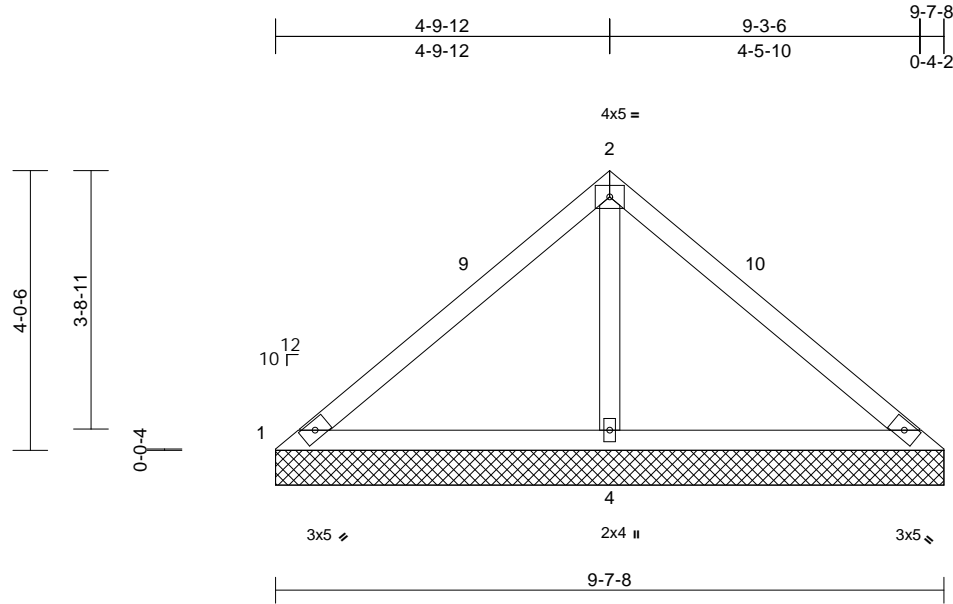
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss VLB6	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619689
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:vFTOYoza1WjXT9L6tv8uVZzRQre-RfC?PsB70Hq3NSgPqnL8w3uITxbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:33.2

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	0.45	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.42	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.18	Horiz(TL)	0.01	4	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH							
BCDL	10.0									Weight: 37 lb	FT = 20%

**LUMBER**

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**

TOP CHORD Structural wood sheathing directly applied or 9-7-8 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

**REACTIONS**

(size) 1=9-7-8, 3=9-7-8, 4=9-7-8  
Max Horiz 1=90 (LC 11)  
Max Uplift 1=-49 (LC 21), 3=-49 (LC 20), 4=-108 (LC 14)  
Max Grav 1=95 (LC 20), 3=95 (LC 21), 4=772 (LC 20)

**FORCES**

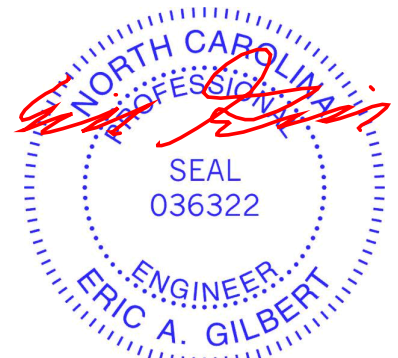
(lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-115/373, 2-3=-115/373  
BOT CHORD 1-4=-214/172, 3-4=-214/172  
WEBS 2-4=-595/271

**NOTES**

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-0-5, Exterior(2R) 3-0-5 to 6-7-13, Exterior(2E) 6-7-13 to 9-7-13 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) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.

- 4) TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- 5) Unbalanced snow loads have been considered for this design.
- 6) Gable requires continuous bottom chord bearing.
- 7) Gable studs spaced at 4-0-0 oc.
- 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) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 49 lb uplift at joint 1, 49 lb uplift at joint 3 and 108 lb uplift at joint 4.
- 11) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

**LOAD CASE(S)** Standard



April 2, 2024

**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/TPI1 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)



818 Soundside Road  
Edenton, NC 27932

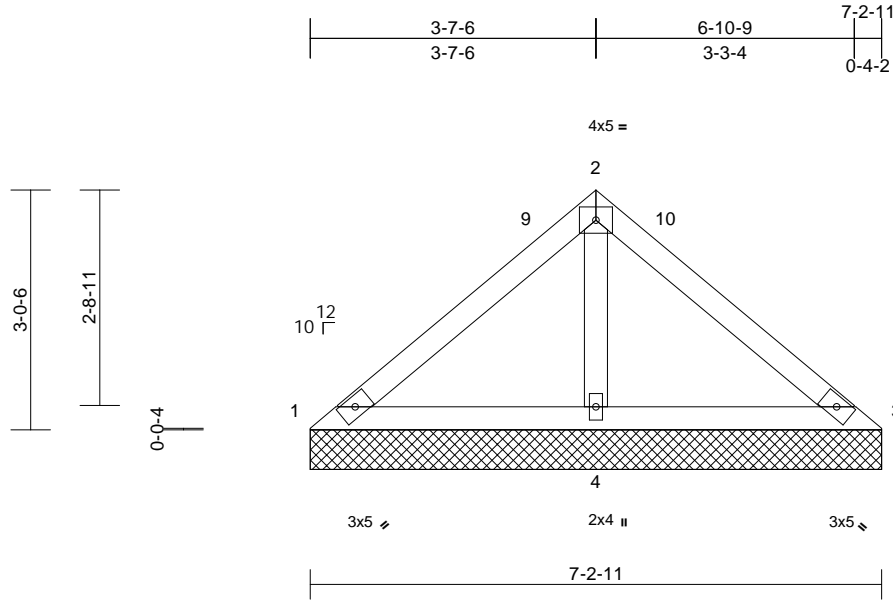


Job 24030135	Truss VLB7	Truss Type Valley	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619690
-----------------	---------------	----------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:vFTOYoza1WjXT9L6tv8uVZzRQre-RfC?PsB70Hq3NSgPqnL8w3uITxBGKWRCDoi7J4zJC?f

Page: 1



Scale = 1:29.1

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	0.26	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.26	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.09	Horiz(TL)	0.00	4	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MP								
BCDL	10.0											
										Weight: 27 lb	FT = 20%	

#### LUMBER

TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

#### BRACING

TOP CHORD Structural wood sheathing directly applied or 7-2-11 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

#### REACTIONS

(size) 1=7-2-11, 3=7-2-11, 4=7-2-11  
Max Horiz 1=67 (LC 11)  
Max Uplift 1=-17 (LC 21), 3=-17 (LC 20),  
4=-73 (LC 14)  
Max Grav 1=105 (LC 20), 3=105 (LC 21),  
4=531 (LC 20)

#### FORCES

(lb) - Maximum Compression/Maximum Tension

TOP CHORD 1-2=-88/228, 2-3=-88/228  
BOT CHORD 1-4=-160/151, 3-4=-160/151  
WEBS 2-4=-378/199

#### NOTES

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-5 to 3-0-5, Exterior(2R) 3-0-5 to 4-3-0, Exterior(2E) 4-3-0 to 7-3-0 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.

- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 17 lb uplift at joint 1, 17 lb uplift at joint 3 and 73 lb uplift at joint 4.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

LOAD CASE(S) Standard



April 2, 2024

**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](http://www.tpinst.org)) and **BCSI Building Component Safety Information** available from the Structural Building Component Association ([www.sbcacomponents.com](http://www.sbcacomponents.com))

ENGINEERING BY  
**TRENCO**  
A MiTek Affiliate

818 Soundside Road  
Edenton, NC 27932

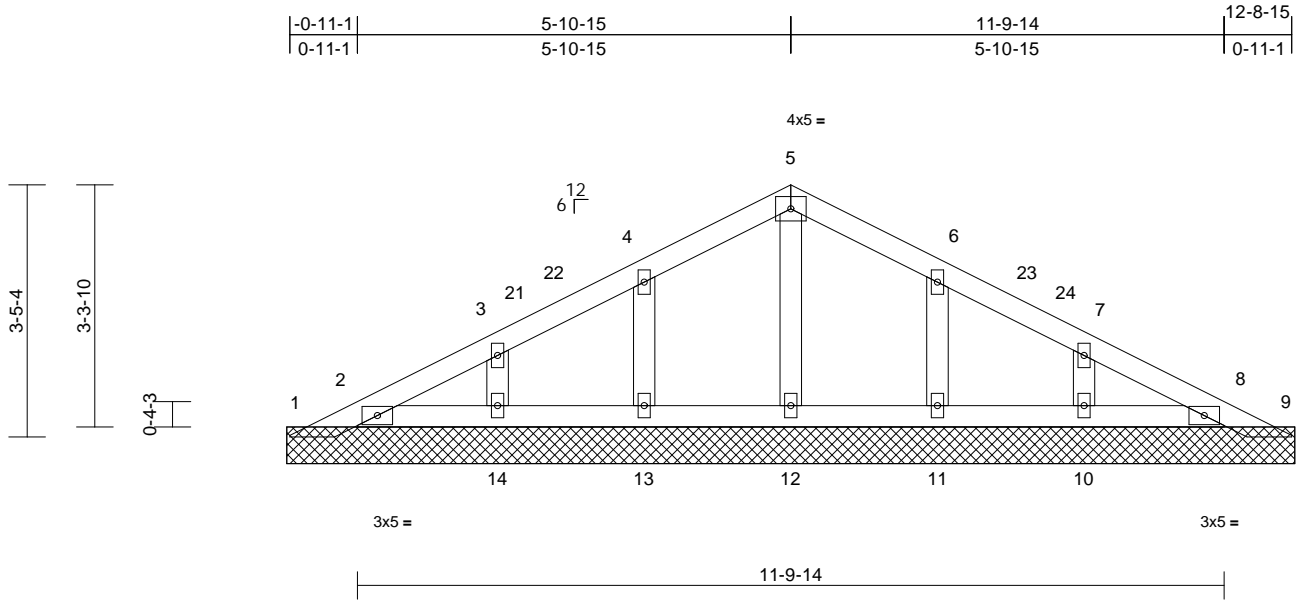


Job 24030135	Truss PBA2	Truss Type Piggyback	Qty 2	Ply 4	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	I64619692
-----------------	---------------	-------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:52  
ID:m2dQdjppkexqPVgwg5aZpZRCX1-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWRCDoi7J4zJC?f

Page: 1



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	0.02	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.01	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.01	Horiz(TL)	0.00	9	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0										Weight: 207 lb	FT = 20%

**LUMBER**  
 TOP CHORD 2x4 SP No.2  
 BOT CHORD 2x4 SP No.2  
 OTHERS 2x4 SP No.3

**BRACING**  
 TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

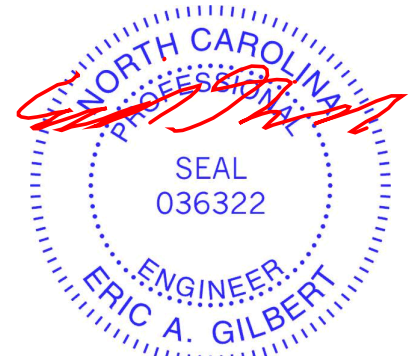
**REACTIONS** (size)  
 1=13-9-0, 2=13-9-0, 8=13-9-0,  
 9=13-9-0, 10=13-9-0, 11=13-9-0,  
 12=13-9-0, 13=13-9-0, 14=13-9-0,  
 15=13-9-0, 18=13-9-0  
 Max Horiz 1=52 (LC 14)  
 Max Uplift 1=-25 (LC 15), 2=-14 (LC 14), 8=-7 (LC 15), 9=-2 (LC 22), 10=-45 (LC 15), 11=-47 (LC 15), 13=-48 (LC 14), 14=-44 (LC 14), 15=-14 (LC 14), 18=-7 (LC 15)  
 Max Grav 1=24 (LC 18), 2=154 (LC 21), 8=142 (LC 22), 9=4 (LC 1), 10=233 (LC 22), 11=245 (LC 22), 12=144 (LC 21), 13=244 (LC 21), 14=234 (LC 21), 15=154 (LC 21), 18=142 (LC 22)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 1-2=-56/69, 2-3=-48/32, 3-4=-55/50, 4-5=-62/105, 5-6=-62/105, 6-7=-55/40, 7-8=-29/26, 8-9=0/24  
 BOT CHORD 2-14=-15/54, 13-14=-15/54, 12-13=-15/54, 11-12=-15/54, 10-11=-15/54, 8-10=-15/54  
 WEBS 5-12=-103/0, 4-13=-208/121, 3-14=-181/90, 6-11=-208/121, 7-10=-180/91

**NOTES**

- 4-ply truss to be connected together as follows: Top chords connected with 10d (0.131"x3") nails as follows: 2x4 - 1 row at 0-9-0 oc. Bottom chords connected with 10d (0.131"x3") nails as follows: 2x4 - 1 row at 0-9-0 oc.
- All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-3 to 3-4-3, Interior (1) 3-4-3 to 3-10-8, Exterior(2R) 3-10-8 to 9-10-8, Interior (1) 9-10-8 to 10-4-13, Exterior(2E) 10-4-13 to 13-4-13 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.

- \* 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.
  - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 14 lb uplift at joint 2, 7 lb uplift at joint 8, 25 lb uplift at joint 1, 2 lb uplift at joint 9, 48 lb uplift at joint 13, 44 lb uplift at joint 14, 47 lb uplift at joint 11, 45 lb uplift at joint 10, 14 lb uplift at joint 2 and 7 lb uplift at joint 8.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
  - See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.
- LOAD CASE(S)** Standard



April 2, 2024

**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

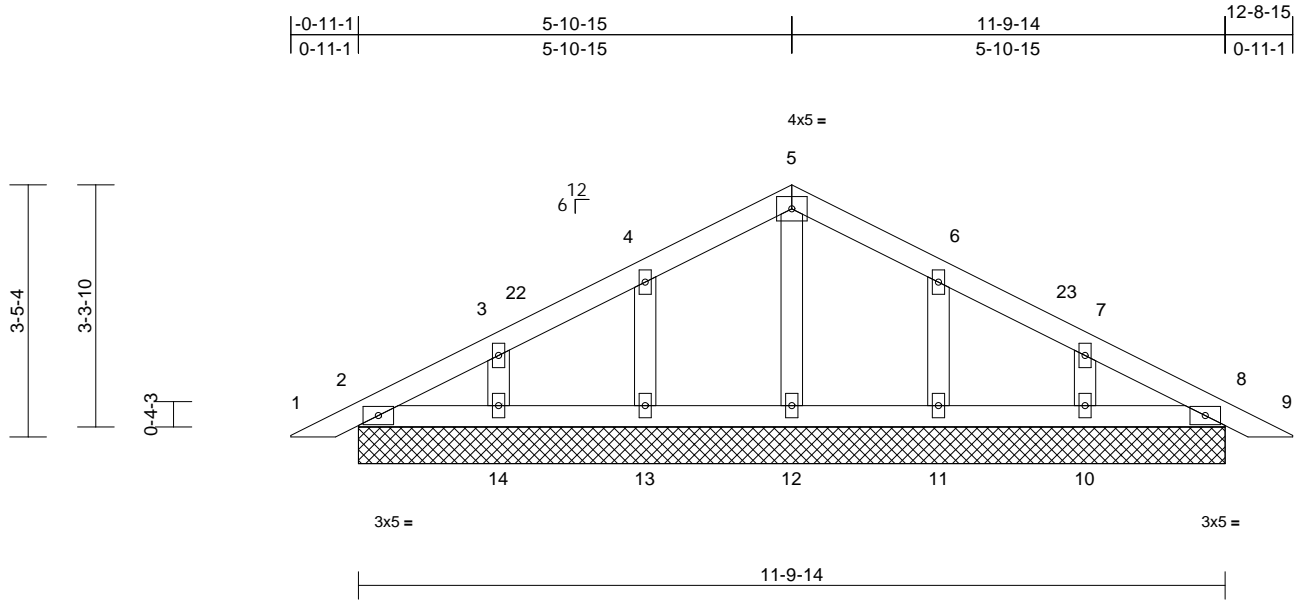
Job 24030135	Truss PBA	Truss Type Piggyback	Qty 2	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619693
-----------------	--------------	-------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51

Page: 1

ID:RPY8AW\_GFKlcY3mFoYebvHzRQqK-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWwCdoi7J4zJC?ft



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	0.08	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.04	Vert(CT)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.04	Horz(CT)	0.00	8	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 52 lb	FT = 20%

**LUMBER**  
 TOP CHORD 2x4 SP No.2  
 BOT CHORD 2x4 SP No.2  
 OTHERS 2x4 SP No.3

**BRACING**  
 TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS** (size)  
 2=11-9-14, 8=11-9-14, 10=11-9-14, 11=11-9-14, 12=11-9-14, 13=11-9-14, 14=11-9-14, 15=11-9-14, 19=11-9-14  
 Max Horiz 2=52 (LC 18), 15=52 (LC 18)  
 Max Uplift 2=-9 (LC 15), 8=-11 (LC 15), 10=-45 (LC 15), 11=-47 (LC 15), 13=-47 (LC 14), 14=-45 (LC 14), 15=-9 (LC 15), 19=-11 (LC 15)  
 Max Grav 2=123 (LC 21), 8=123 (LC 22), 10=237 (LC 22), 11=244 (LC 22), 12=143 (LC 21), 13=244 (LC 21), 14=237 (LC 21), 15=123 (LC 21), 19=123 (LC 22)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
 TOP CHORD 1-2=0/17, 2-3=-46/33, 3-4=-56/49, 4-5=-63/116, 5-6=-63/116, 6-7=-56/49, 7-8=-29/25, 8-9=0/17  
 BOT CHORD 2-14=-9/67, 13-14=-9/67, 12-13=-9/67, 11-12=-9/67, 10-11=-9/67, 8-10=-9/67  
 WEBS 5-12=-102/0, 4-13=-208/125, 3-14=-181/113, 6-11=-208/125, 7-10=-181/113

**NOTES**  
 1) Unbalanced roof live loads have been considered for this design.

- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Corner(3E) 0-4-3 to 3-4-3, Exterior(2N) 3-4-3 to 3-10-8, Corner(3R) 3-10-8 to 9-10-8, Exterior(2N) 9-10-8 to 10-4-13, Corner(3E) 10-4-13 to 13-4-13 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
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- All plates are 2x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 2, 8, 13, 14, 11, and 10. This connection is for uplift only and does not consider lateral forces.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

14) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.  
**LOAD CASE(S)** Standard



April 2, 2024

**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)



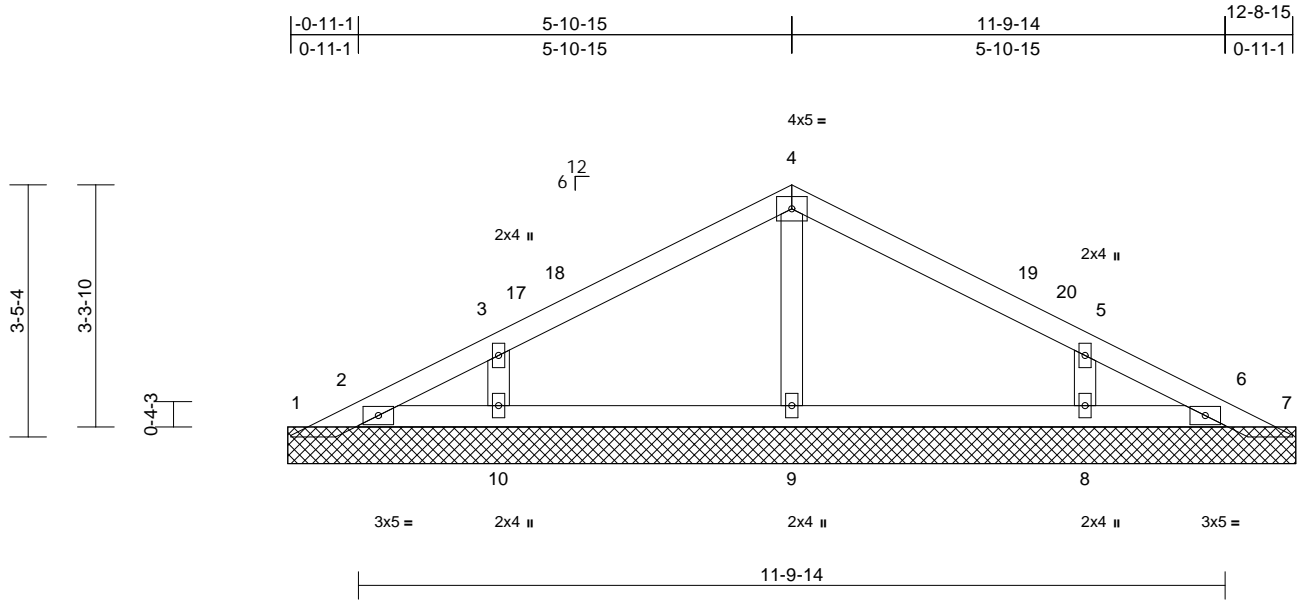
818 Soundside Road  
 Edenton, NC 27932

Job 24030135	Truss PBA1	Truss Type Piggyback	Qty 18	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619694
-----------------	---------------	-------------------------	-----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:51  
ID:Cx19sF4HMnJTVINoGDnTDzRQc-RfC?PsB70Hq3NSgPqnL8w3uITXbGKwRCDoi7J4zJC?f

Page: 1



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	0.29	Vert(LL)	n/a	-	n/a	999	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.12	Vert(TL)	n/a	-	n/a	999		
TCDL	10.0	Rep Stress Incr	YES	WB	0.08	Horiz(TL)	0.00	7	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0										Weight: 47 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
OTHERS 2x4 SP No.3

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS** (size)  
1=13-9-0, 2=13-9-0, 6=13-9-0,  
7=13-9-0, 8=13-9-0, 9=13-9-0,  
10=13-9-0, 11=13-9-0, 14=13-9-0  
Max Horiz 1=52 (LC 14)  
Max Uplift 1=-25 (LC 15), 7=-12 (LC 15),  
8=-92 (LC 15), 10=-91 (LC 14)  
Max Grav 1=47 (LC 21), 2=65 (LC 1), 6=52  
(LC 1), 7=49 (LC 22), 8=439 (LC  
22), 9=299 (LC 21), 10=440 (LC  
21), 11=65 (LC 1), 14=52 (LC 1)

**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=-56/65, 2-3=-54/49, 3-4=-124/93,  
4-5=-124/93, 5-6=-35/49, 6-7=-20/16  
BOT CHORD 2-10=-8/44, 9-10=-8/44, 8-9=-8/44, 6-8=-8/44  
WEBS 4-9=-213/93, 3-10=-386/207, 5-8=-386/207

**NOTES**  
1) Unbalanced roof live loads have been considered for this design.  
2) Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-4-3 to 3-4-3, Interior (1) 3-4-3 to 3-10-8, Exterior(2R) 3-10-8 to 9-10-8, Interior (1) 9-10-8 to 10-4-13, Exterior(2E) 10-4-13 to 13-4-13 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

- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10
- Unbalanced snow loads have been considered for this design.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 4-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 25 lb uplift at joint 1 and 12 lb uplift at joint 7.
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 10 and 8. This connection is for uplift only and does not consider lateral forces.
- This truss is in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.

**LOAD CASE(S)** Standard



April 2, 2024

**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

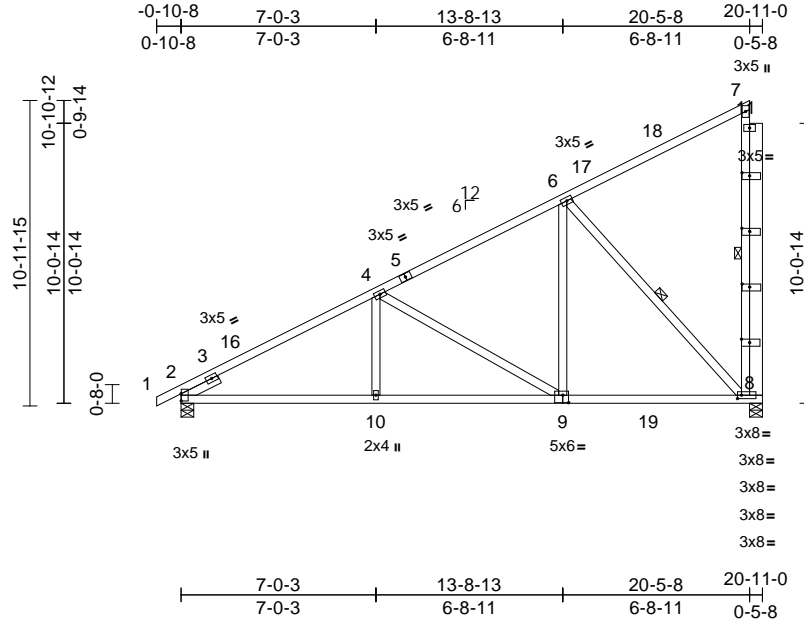


Job 24030135	Truss C01	Truss Type Half Hip	Qty 4	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619695
-----------------	--------------	------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:50  
ID:Je5w06f8goBW?T4xbCQ60Kyfk?K-RfC?PsB70Hq3NSgPqnL8w3uITxbGKWrCdoi7J4zJC?F

Page: 1



Scale = 1:82.9

Plate Offsets (X, Y): [2:0-3-1,0-0-1], [8:0-1-12,0-1-8], [8:0-3-8,0-1-7], [8:0-3-4,0-1-5], [8:0-3-6,0-1-6], [8:0-3-5,0-1-6], [9:0-2-8,0-3-4]

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)	-0.08	8-9	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.68	Vert(CT)	-0.13	8-9	>999	180		
TCDL	10.0	Rep Stress Incr	NO	WB	0.67	Horz(CT)	0.03	8	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 148 lb	FT = 20%

**LUMBER**  
TOP CHORD 2x4 SP No.2  
BOT CHORD 2x4 SP No.2  
WEBS 2x4 SP No.3 \*Except\* 7-8:2x4 SP No.2, 11-8:2x6 SP No.2  
SLIDER Left 2x4 SP No.3 -- 1-6-0

**BRACING**  
TOP CHORD Structural wood sheathing directly applied or 4-9-0 oc purlins, except end verticals.  
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.  
WEBS 1 Row at midpt 7-8, 6-8

**REACTIONS** (size) 2=0-5-8, 8=0-5-8  
Max Horiz 2=386 (LC 14)  
Max Uplift 2=-48 (LC 14), 8=-343 (LC 14)  
Max Grav 2=948 (LC 5), 8=1731 (LC 21)

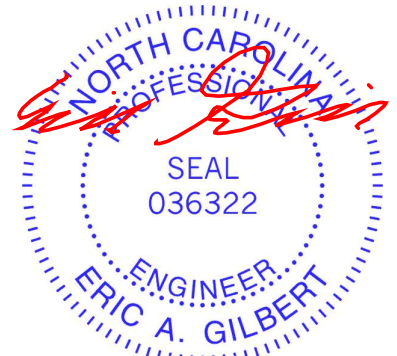
**FORCES** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/23, 2-4=-1361/28, 4-6=-813/0, 6-7=-164/105, 7-8=-271/93  
BOT CHORD 2-10=-397/1163, 8-10=-317/1163  
WEBS 4-10=0/264, 4-9=-588/185, 6-9=0/584, 6-8=-953/226

- Unbalanced snow loads have been considered for this design.
- This truss has been designed for greater of min roof live load of 12.0 psf or 1.00 times flat roof load of 20.0 psf on overhangs non-concurrent with other live loads.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- \* 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.
- One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 8 and 2. This connection is for uplift only and does not consider lateral forces.
- This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 747 lb down and 128 lb up at 20-5-8 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.

**LOAD CASE(S)** Standard

- Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-7=-60, 8-12=-20  
Concentrated Loads (lb)  
Vert: 8=747

- NOTES**
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) -0-10-8 to 2-1-8, Interior (1) 2-1-8 to 17-3-12, Exterior(2E) 17-3-12 to 20-3-12 zone; end vertical left exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10



April 2, 2024

**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)



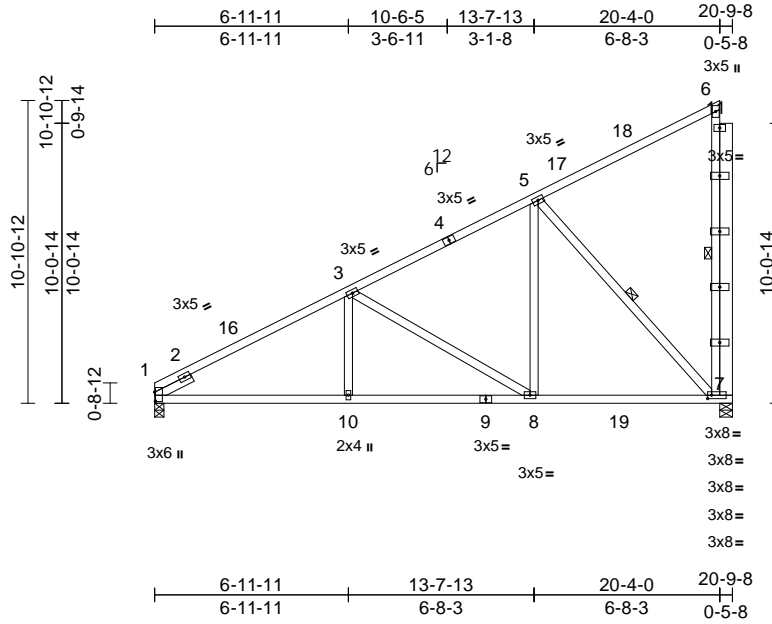
818 Soundside Road  
Edenton, NC 27932

Job 24030135	Truss C02	Truss Type Half Hip	Qty 1	Ply 1	137 Serenity-Roof-B326 A COP GRH Job Reference (optional)	164619696
-----------------	--------------	------------------------	----------	----------	--	-----------

Carter Components (Sanford, NC), Sanford, NC - 27332,

Run: 8.73 S Mar 21 2024 Print: 8.730 S Mar 21 2024 MiTek Industries, Inc. Mon Apr 01 20:29:50  
ID:EGq646Pbf2EXC6nWlJzpaijfwU-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWRcDoi7J4zJC?f

Page: 1



Scale = 1:82.9

Plate Offsets (X, Y): [1:0-4-1,0-0-5], [7:0-1-12,0-1-8]

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	0.80	Vert(LL)	-0.08	7-8	>999	240	MT20	244/190
Snow (Pf)	20.0	Lumber DOL	1.15	BC	0.61	Vert(CT)	-0.13	7-8	>999	180		
TCDL	10.0	Rep Stress Incr	YES	WB	0.65	Horz(CT)	0.03	7	n/a	n/a		
BCLL	0.0*	Code	IRC2018/TPI2014	Matrix-MSH								
BCDL	10.0											
											Weight: 146 lb	FT = 20%

LUMBER	
TOP CHORD	2x4 SP No.2
BOT CHORD	2x4 SP No.2
WEBS	2x4 SP No.3 *Except* 6-7:2x4 SP No.2, 11-7:2x6 SP No.2
SLIDER	Left 2x4 SP No.3 -- 1-6-0
BRACING	
TOP CHORD	Structural wood sheathing directly applied or 4-7-14 oc purlins, except end verticals.
BOT CHORD	Rigid ceiling directly applied or 10-0-0 oc bracing.
WEBS	1 Row at midpt 6-7, 5-7
REACTIONS	
(size)	1=0-4-0, 7=0-5-8
Max Horiz	1=370 (LC 14)
Max Uplift	1=-29 (LC 14), 7=-343 (LC 14)
Max Grav	1=896 (LC 5), 7=1717 (LC 20)
FORCES	
(lb) - Maximum Compression/Maximum Tension	
TOP CHORD	1-3=-1330/28, 3-5=-798/0, 5-6=-159/102, 6-7=-265/95
BOT CHORD	1-10=-408/1133, 8-10=-316/1133, 7-8=-156/655
WEBS	3-10=0/258, 3-8=-570/185, 5-8=-2/579, 5-7=-940/226

- NOTES**
- Wind: ASCE 7-16; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; Cat II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior(2E) 0-0-0 to 3-0-0, Interior (1) 3-0-0 to 17-2-4, Exterior(2E) 17-2-4 to 20-2-4 zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - TCLL: ASCE 7-16; Pr=20.0 psf (roof LL: Lum DOL=1.15 Plate DOL=1.15); Pf=20.0 psf (Lum DOL=1.15 Plate DOL=1.15); Is=1.0; Rough Cat B; Fully Exp.; Ce=0.9; Cs=1.00; Ct=1.10

- Unbalanced snow loads have been considered for this design.
  - All plates are 3x5 MT20 unless otherwise indicated.
  - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - \* 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.
  - One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 7 and 1. This connection is for uplift only and does not consider lateral forces.
  - This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
  - Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 747 lb down and 129 lb up at 20-8-4 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- LOAD CASE(S)** Standard
- Dead + Snow (balanced): Lumber Increase=1.15, Plate Increase=1.15  
Uniform Loads (lb/ft)  
Vert: 1-6=-60, 7-12=-20  
Concentrated Loads (lb)  
Vert: 7=-747



April 2, 2024

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

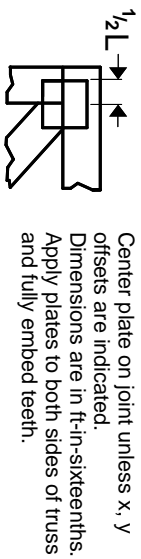
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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)



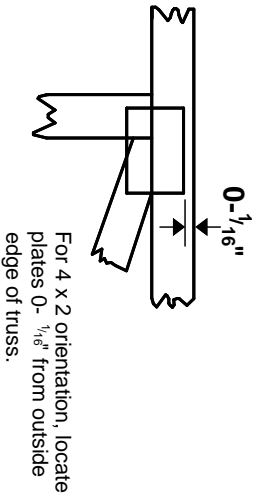
818 Soundside Road  
Edenton, NC 27932

# 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.



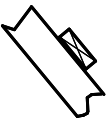
This symbol indicates the required direction of slots in connector plates.

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

## PLATE SIZE

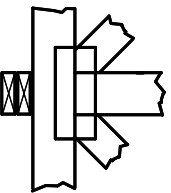
**4 X 4**  
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## 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.

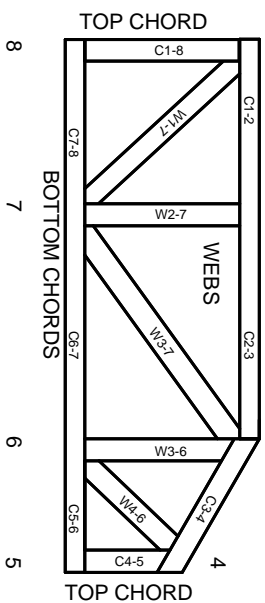
## Industry Standards:

ANSI/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



1 TOP CHORDS  
2 Joint ID  
3 typ.



**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.

© 2023 MITek® All Rights Reserved

# 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.

**MITek**

ENGINEERING BY  
**TRENGO**  
A MITek Affiliate

MITek Engineering Reference Sheet: MIL-7473 rev. 1/2/2023