

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: Wilmington C Vault
Wilmington C Vault

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by 84 Components - #2383.

Pages or sheets covered by this seal: I59737251 thru I59737258

My license renewal date for the state of North Carolina is December 31, 2023.

North Carolina COA: C-0844



July 26, 2023

Gilbert, Eric

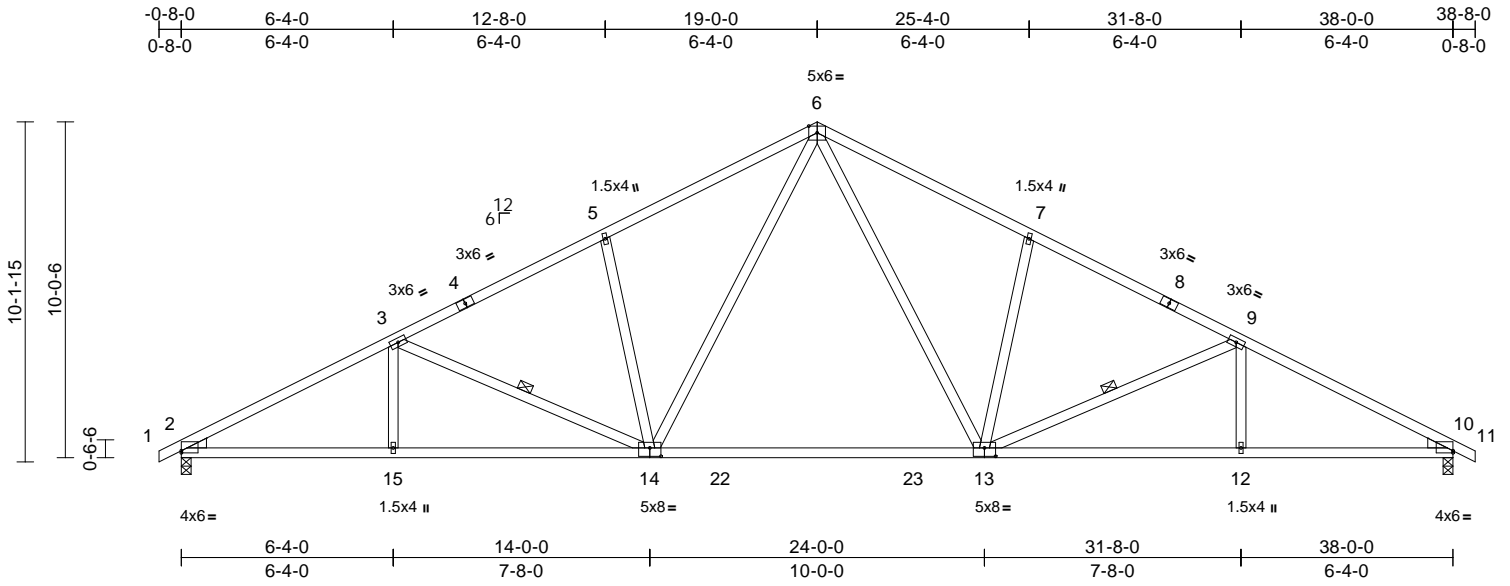
IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MiTek or TRENCO. Any project specific information included is for MiTek's or TRENCO's customers file reference purpose only, and was not taken into account in the preparation of these designs. MiTek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSI/TPI 1, Chapter 2.

Job Wilmington C Vault	Truss A	Truss Type Common	Qty 6	Ply 1	Wilmington C Vault Job Reference (optional)	I59737251
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:18
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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	0.70	Vert(LL)	-0.42	13-14	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.81	Vert(CT)	-0.72	13-14	>632	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.52	Horz(CT)	0.12	10	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS							Weight: 208 lb	FT = 20%

LUMBER
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.1
WEBS 2x4 SP No.2 *Except* 3-15,12-9:2x4 SP No.3
WEDGE Left: 2x4 SP No.3
Right: 2x4 SP No.3

BRACING
TOP CHORD Structural wood sheathing directly applied or 2-8-6 oc purlins.
BOT CHORD Rigid ceiling directly applied or 8-9-11 oc bracing.
WEBS 1 Row at midpt 3-14, 9-13

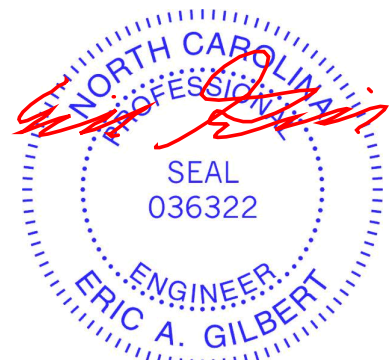
REACTIONS (size) 2=0-3-8, 10=0-3-8
Max Horiz 2=164 (LC 12)
Max Uplift 2=-192 (LC 12), 10=-192 (LC 13)
Max Grav 2=1560 (LC 1), 10=1560 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/18, 2-3=-2780/664, 3-5=-2267/608,
5-6=-2195/708, 6-7=-2195/708,
7-9=-2267/608, 9-10=-2780/664, 10-11=0/18
BOT CHORD 2-15=-495/2402, 12-15=-497/2402,
10-12=-497/2402
WEBS 6-14=-249/880, 6-13=-249/880, 3-15=0/227,
3-14=-508/198, 5-14=-389/258,
7-13=-389/258, 9-13=-508/198, 9-12=0/227

- * 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 192 lb uplift at joint 2 and 192 lb uplift at joint 10.
- This truss is designed in accordance with the 2015 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 7-10; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.



July 26, 2023

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.
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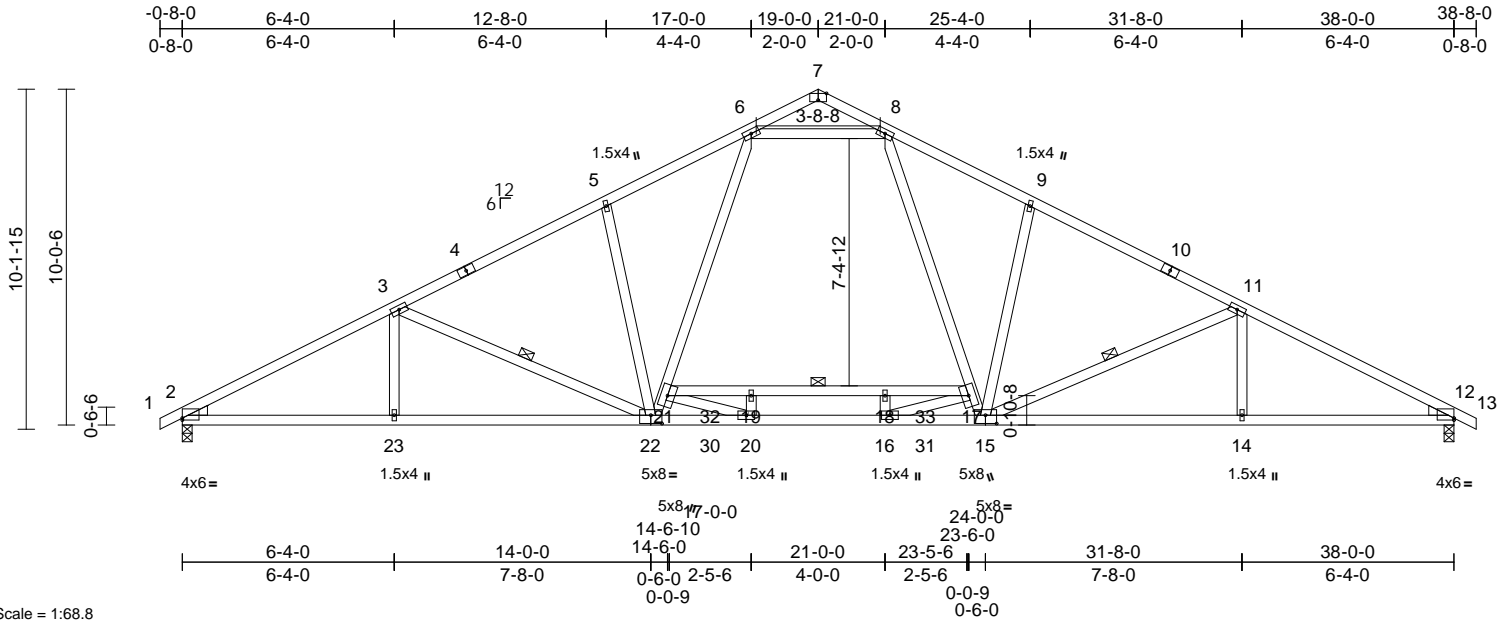
ENGINEERING BY
TRENCO
A MiTek Affiliate
818 Soundside Road
Edenton, NC 27932

Job Wilmington C Vault	Truss A1	Truss Type Common	Qty 6	Ply 1	Wilmington C Vault Job Reference (optional)	I59737252
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:20
ID:epkuVx63hCb_R7w1kdpqxRzBPFg-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:68.8
Plate Offsets (X, Y): [2:Edge,0-0-12], [7:0-3-0,Edge], [12:Edge,0-0-12], [15:0-4-0,0-3-0], [22:0-4-0,0-3-0]

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	0.80	Vert(LL)	-0.33	14-15	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.86	Vert(CT)	-0.55	14-15	>833	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.70	Horz(CT)	0.14	12	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS							Weight: 231 lb	FT = 20%

LUMBER
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.1 *Except* 22-15,21-17:2x4 SP No.2
WEBS 2x4 SP No.3 *Except* 22-6,15-8,22-3,22-5,15-9,15-11:2x4 SP No.2
WEDGE Left: 2x4 SP No.3 Right: 2x4 SP No.3

BRACING
TOP CHORD Structural wood sheathing directly applied or 2-4-4 oc purlins.
BOT CHORD Rigid ceiling directly applied or 9-11-3 oc bracing. Except: 5-9-0 oc bracing: 17-21
WEBS 1 Row at midpt 3-22, 11-15

REACTIONS (size) 2=0-3-8, 12=0-3-8
Max Horiz 2=164 (LC 12)
Max Uplift 2=-137 (LC 12), 12=-137 (LC 13)
Max Grav 2=1652 (LC 1), 12=1652 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/18, 2-3=-3021/549, 3-5=-2588/489, 5-6=-2518/568, 6-7=-157/64, 7-8=-157/65, 8-9=-2518/568, 9-11=-2588/489, 11-12=-3021/549, 12-13=0/18
BOT CHORD 2-23=-394/2627, 20-23=-394/2627, 16-20=0/2707, 14-16=-396/2627, 12-14=-396/2627, 19-21=-1054/0, 18-19=-1054/0, 17-18=-1054/0
WEBS 21-22=-234/780, 6-21=-142/1004, 8-17=-142/1004, 15-17=-234/780, 3-23=0/240, 3-22=-527/208, 5-22=-414/234, 9-15=-414/233, 11-15=-527/208, 11-14=0/240, 6-8=-1798/479, 19-20=-194/0, 20-21=0/1080, 16-18=-194/0, 16-17=0/1080

- Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - All plates are 3x6 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.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 137 lb uplift at joint 2 and 137 lb uplift at joint 12.
 - This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
 - ATTIC SPACE SHOWN IS DESIGNED AS UNINHABITABLE.
- LOAD CASE(S)** Standard



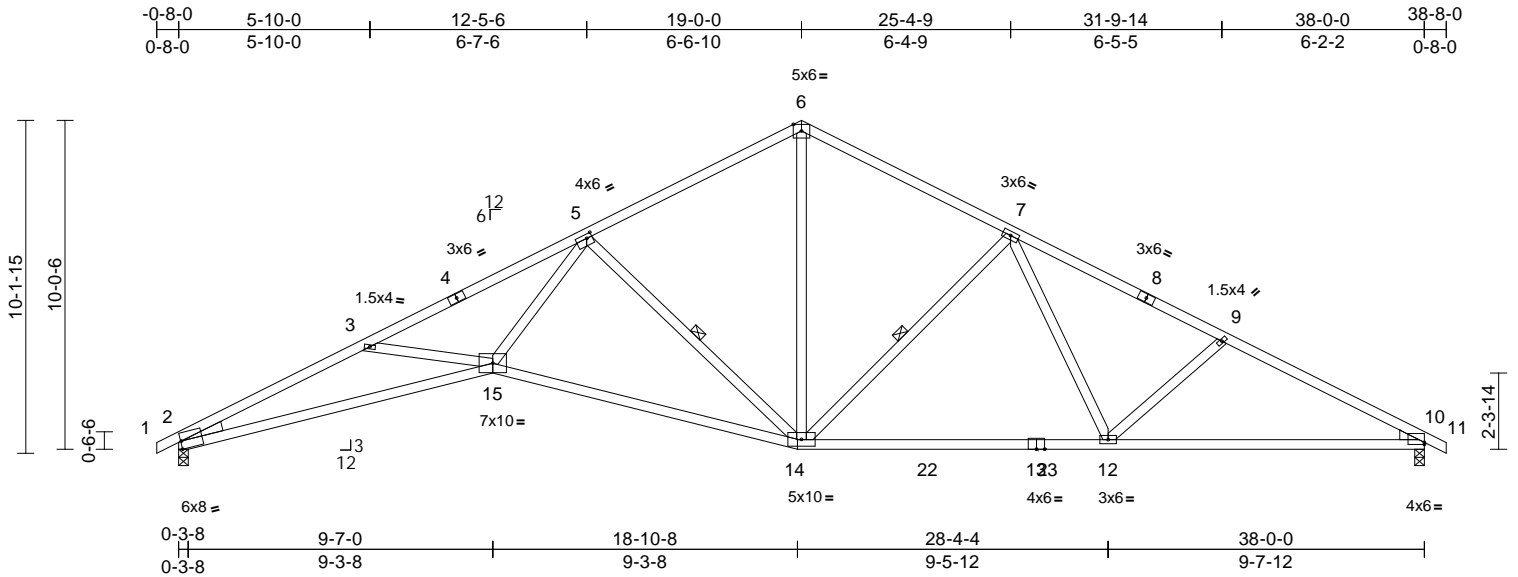
July 26, 2023

Job Wilmington C Vault	Truss A2	Truss Type Roof Special	Qty 8	Ply 1	Wilmington C Vault Job Reference (optional)	159737253
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:21
ID:FCrS6sKUMkntVP?OWG65HFzBPCo-RIC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f

Page: 1



Scale = 1:70.3

Plate Offsets (X, Y): [2:0-0-4,Edge], [5:0-2-0,0-1-8], [10:Edge,0-0-12]

Loading	(psf)	Spacing	2-0-0	CSI	DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP	
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.65	Vert(LL)	-0.40	12-14	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.83	Vert(CT)	-0.84	14-15	>544	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.96	Horz(CT)	0.32	10	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS							Weight: 197 lb	FT = 20%

LUMBER
TOP CHORD 2x4 SP DSS
BOT CHORD 2x4 SP No.1 *Except* 2-15:2x4 SP DSS
WEBS 2x4 SP No.2 *Except* 3-15,5-15,9-12:2x4 SP No.3
WEDGE Left: 2x4 SP No.3
Right: 2x4 SP No.3

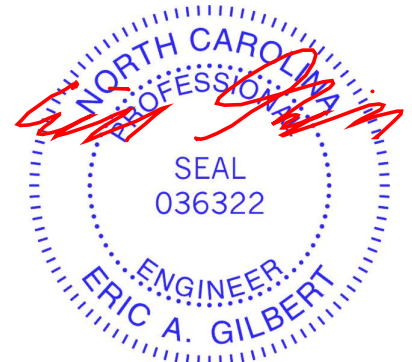
BRACING
TOP CHORD Structural wood sheathing directly applied or 2-6-10 oc purlins.
BOT CHORD Rigid ceiling directly applied or 6-10-3 oc bracing.
WEBS 1 Row at midpt 5-14, 7-14

REACTIONS (size) 2=0-3-8, 10=0-3-8
Max Horiz 2=164 (LC 12)
Max Uplift 2=-192 (LC 12), 10=-192 (LC 13)
Max Grav 2=1560 (LC 1), 10=1560 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/18, 2-3=-4846/1173, 3-5=-4506/991, 5-6=-1792/571, 6-7=-1770/566, 7-9=-2501/648, 9-10=-2773/696, 10-11=0/18
BOT CHORD 2-15=-981/4380, 14-15=-502/2757, 12-14=-343/1984, 10-12=-526/2398
WEBS 6-14=-321/1167, 3-15=-312/273, 5-15=-349/2321, 5-14=-1623/474, 7-14=-705/294, 7-12=-30/517, 9-12=-327/230

- NOTES**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - 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.
 - Bearing at joint(s) 2 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 192 lb uplift at joint 2 and 192 lb uplift at joint 10.
 - This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
- LOAD CASE(S)** Standard



July 26, 2023

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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, DSB-89 and BCSI Building Component Safety Information** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



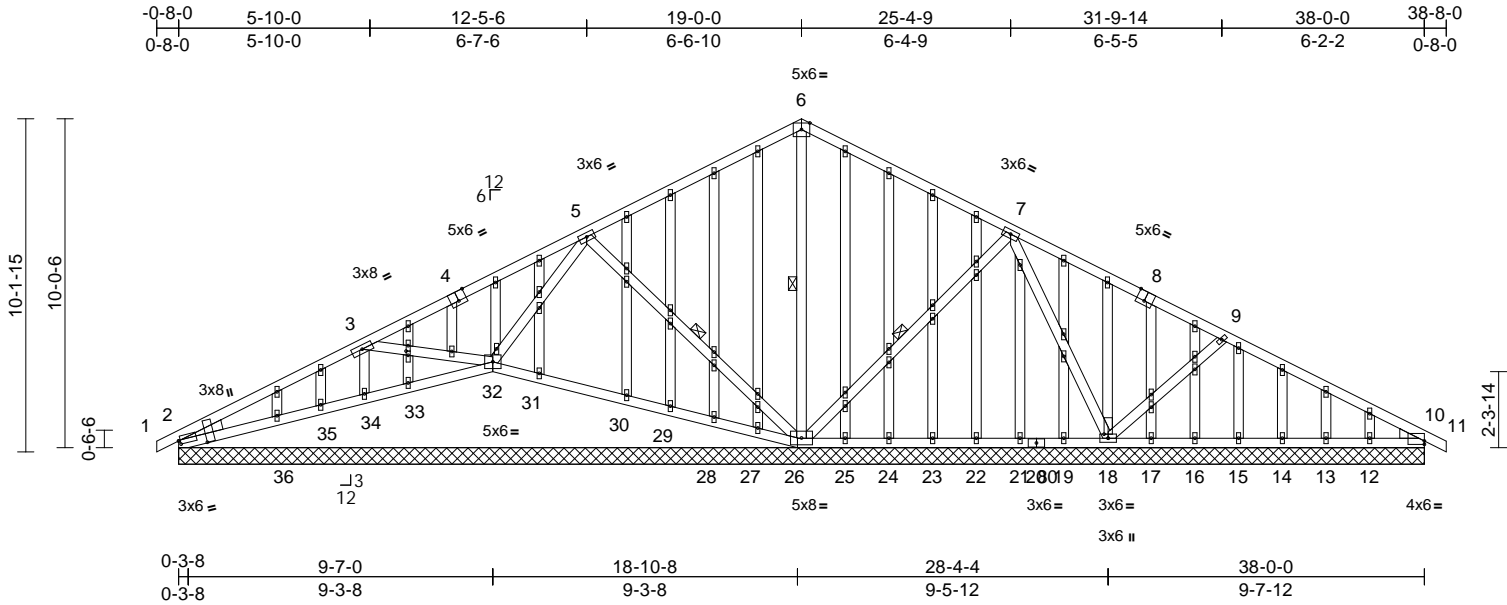
818 Soundside Road
Edenton, NC 27932

Job Wilmington C Vault	Truss A2E	Truss Type Roof Special Supported Gable	Qty 1	Ply 1	Wilmington C Vault Job Reference (optional)	I59737254
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:21
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Page: 1



Scale = 1:70.3
Plate Offsets (X, Y): [2:0-0-10,0-1-5], [2:0-3-0,0-10-1], [4:0-3-0,Edge], [8:0-3-0,Edge], [10:Edge,0-1-4], [18:0-1-8,0-1-8], [50:0-1-9,0-0-12]

Loading	(psf)	Spacing	2-0-0	CSI	DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP	
TCLL (roof)	20.0	Plate Grip DOL	1.15	TC	0.65	Vert(LL)	n/a	-	n/a	999	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.37	Vert(CT)	n/a	-	n/a	999		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.55	Horz(CT)	0.01	10	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS								Weight: 347 lb FT = 20%

LUMBER	TOP CHORD	BOT CHORD	WEBS	OTHERS	WEDGE	BRACING	TOP CHORD	BOT CHORD	WEBS	REACTIONS	Max Horiz	Max Uplift
2x4 SP No.2	2x4 SP No.2	2x4 SP No.2	2x4 SP No.2 *Except* 3-32,5-32,9-18:2x4 SP No.3	2x4 SP No.3 *Except* 37-38,55-54:2x4 SP No.2	Left: 2x4 SP No.3 Right: 2x4 SP No.3	Structural wood sheathing directly applied or 6-0-0 oc purlins.	Rigid ceiling directly applied or 6-0-0 oc bracing, Except: 10-0-0 oc bracing: 2-36,35-36,34-35,33-34,32-33.	1 Row at midpt 6-26, 5-26, 7-26	2=38-0-0, 10=38-0-0, 12=38-0-0, 13=38-0-0, 14=38-0-0, 15=38-0-0, 16=38-0-0, 17=38-0-0, 18=38-0-0, 19=38-0-0, 21=38-0-0, 22=38-0-0, 23=38-0-0, 24=38-0-0, 25=38-0-0, 26=38-0-0, 27=38-0-0, 28=38-0-0, 29=38-0-0, 30=38-0-0, 31=38-0-0, 32=38-0-0, 33=38-0-0, 34=38-0-0, 35=38-0-0, 36=38-0-0, 74=38-0-0	2=164 (LC 12), 74=164 (LC 12)	2=-86 (LC 13), 12=-122 (LC 13), 13=-142 (LC 24), 18=-273 (LC 13), 26=-208 (LC 12), 32=-247 (LC 12), 35=-21 (LC 23), 36=-40 (LC 12), 74=-86 (LC 13)	
Max Grav	2=269 (LC 23), 12=368 (LC 24), 13=74 (LC 13), 14=73 (LC 3), 15=48 (LC 3), 16=55 (LC 3), 17=52 (LC 3), 18=812 (LC 24), 19=54 (LC 3), 21=79 (LC 18), 22=83 (LC 18), 23=54 (LC 3), 24=51 (LC 3), 25=60 (LC 3), 26=604 (LC 1), 27=53 (LC 3), 28=58 (LC 3), 29=36 (LC 3), 30=94 (LC 3), 31=88 (LC 3), 32=624 (LC 23), 33=96 (LC 3), 34=44 (LC 3), 35=44 (LC 12), 36=135 (LC 3), 74=269 (LC 23)	(lb) - Maximum Compression/Maximum Tension	TOP CHORD	1-2=0/18, 2-3=-383/209, 3-5=-155/358, 5-6=-38/218, 6-7=-21/195, 7-9=-80/465, 9-10=-185/277, 10-11=0/18	BOT CHORD	2-36=-196/333, 35-36=-181/307, 34-35=-188/318, 33-34=-185/317, 32-33=-189/318, 31-32=-44/192, 30-31=-46/195, 29-30=-42/194, 28-29=-44/193, 27-28=-43/193, 26-27=-43/193, 25-26=-99/188, 24-25=-99/188, 23-24=-99/188, 22-23=-99/188, 21-22=-99/188, 19-21=-99/188, 18-19=-99/188, 17-18=-71/92, 16-17=-71/92, 15-16=-71/92, 14-15=-71/92, 13-14=-71/92, 12-13=-71/92, 10-12=-125/204	WEBS	6-26=-446/89, 3-32=-537/370, 5-32=-499/218, 5-26=-188/180, 7-26=-60/147, 7-18=-601/211, 9-18=-356/249				

FORCES	(lb) - Maximum Compression/Maximum Tension
TOP CHORD	1-2=0/18, 2-3=-383/209, 3-5=-155/358, 5-6=-38/218, 6-7=-21/195, 7-9=-80/465, 9-10=-185/277, 10-11=0/18
BOT CHORD	2-36=-196/333, 35-36=-181/307, 34-35=-188/318, 33-34=-185/317, 32-33=-189/318, 31-32=-44/192, 30-31=-46/195, 29-30=-42/194, 28-29=-44/193, 27-28=-43/193, 26-27=-43/193, 25-26=-99/188, 24-25=-99/188, 23-24=-99/188, 22-23=-99/188, 21-22=-99/188, 19-21=-99/188, 18-19=-99/188, 17-18=-71/92, 16-17=-71/92, 15-16=-71/92, 14-15=-71/92, 13-14=-71/92, 12-13=-71/92, 10-12=-125/204
WEBS	6-26=-446/89, 3-32=-537/370, 5-32=-499/218, 5-26=-188/180, 7-26=-60/147, 7-18=-601/211, 9-18=-356/249

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

- Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) 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.
- All plates are 1.5x4 MT20 unless otherwise indicated.
- Gable requires continuous bottom chord bearing.
- Gable studs spaced at 1-4-0 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.



July 26, 2023

Continued on page 3

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818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Wilmington C Vault	I59737254
Wilmington C Vault	A2E	Roof Special Supported Gable	1	1	Job Reference (optional)	

84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:21
 ID:Gv7jo_O6JzBmvX_3Tz9yA5zBPA8-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKWrCDoi7J4zJC?#

Page: 2

- 9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 86 lb uplift at joint 2, 247 lb uplift at joint 32, 208 lb uplift at joint 26, 273 lb uplift at joint 18, 21 lb uplift at joint 35, 40 lb uplift at joint 36, 142 lb uplift at joint 13, 122 lb uplift at joint 12 and 86 lb uplift at joint 2.
- 10) Beveled plate or shim required to provide full bearing surface with truss chord at joint(s) 32, 27, 28, 29, 30, 31, 33, 34, 35, 36.
- 11) This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

LOAD CASE(S) Standard

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818 Soundside Road
 Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Wilmington C Vault
Wilmington C Vault	AE	Hip Structural Gable	1	1	Job Reference (optional)
					159737255

84 LUMBER

8.710 e Jul 10 2023 MiTek Industries, Inc. Wed Jul 26 07:18:43 2023 Page 1

ID:95B4pAp7pceBeNEAj2C0KZzBP38-6bSQeeFid9ytzPgXQzKOJIXMKZM1n4Vxot8XUGyuGNQ

0-8-0	6-4-0	12-8-0	16-11-15	21-0-1	25-4-0	31-8-0	38-0-0	38-8-0
0-8-0	6-4-0	6-4-0	4-3-15	4-0-2	4-3-15	6-4-0	6-4-0	0-8-0

Scale = 1:67.2

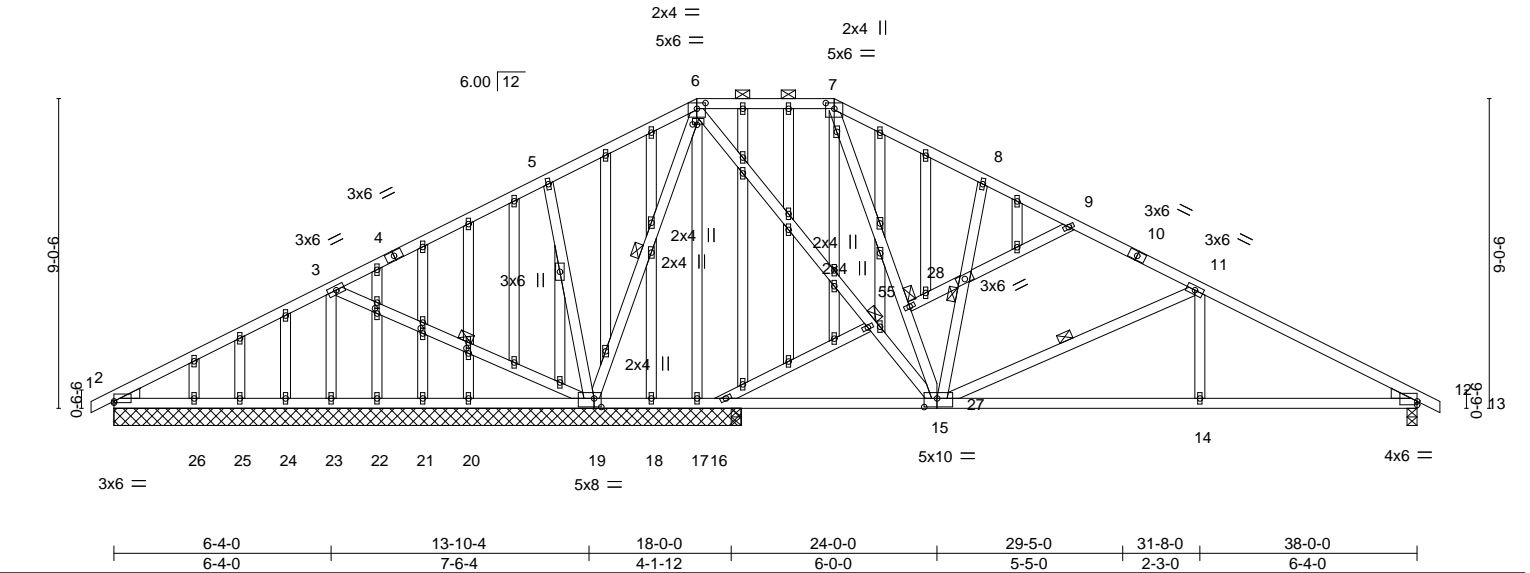


Plate Offsets (X,Y)-- [2:0-0-0,0-0-8], [6:0-1-8,0-0-3], [6:0-3-0,0-2-0], [7:0-3-0,0-2-0], [12:0-0-0,0-1-4], [15:0-4-8,0-3-0], [19:0-2-8,0-3-0], [45:0-1-13,0-0-12], [47:0-1-13,0-0-12], [49:0-1-13,0-0-12]

LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.15	TC 0.51	Vert(LL)	-0.08 14-15	>999	240	MT20	244/190
TCDL 10.0	Lumber DOL	1.15	BC 0.54	Vert(CT)	-0.18 14-15	>999	180		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.45	Horz(CT)	0.02 12	n/a	n/a		
BCDL 10.0	Code IRC2015/TPI2014		Matrix-MS					Weight: 356 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
WEBS 2x4 SP No.2 *Except*
11-14,3-23: 2x4 SP No.3
OTHERS 2x4 SP No.3 *Except*
34-36,6-17,39-40: 2x4 SP No.2
WEDGE
Left: 2x4 SP No.3 , Right: 2x4 SP No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied or 4-7-13 oc purlins, except PSA
2-0-0 oc purlins (6-0-0 max.): 6-7.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing, Except:
10-0-0 oc bracing: 14-15,12-14.
WEBS 1 Row at midpt 6-19, 11-15, 3-19
JOINTS 1 Brace at Jt(s): 27, 28, 55

REACTIONS. All bearings 18-3-8 except (jt=length) 12=0-3-8.
(lb) - Max Horz 2=148(LC 12)
Max Uplift All uplift 100 lb or less at joint(s) 2, 25, 26 except 19=201(LC 13),
23=123(LC 12), 12=156(LC 13), 17=229(LC 3)
Max Grav All reactions 250 lb or less at joint(s) 2, 23, 16, 18, 20, 21, 22, 24, 25,
26, 2 except 19=1570(LC 1), 12=873(LC 1), 16=381(LC 3)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 3-4=8/343, 4-5=0/420, 5-6=0/457, 6-7=-522/332, 7-8=-658/349, 8-9=-626/260,
9-10=-701/272, 10-11=-776/256, 11-12=-1369/346
BOT CHORD 14-15=-214/1149, 12-14=-214/1149
WEBS 6-19=-1127/241, 6-55=-210/848, 15-55=-211/851, 15-27=-317/217, 8-27=-281/194,
11-15=-571/201, 11-14=0/286, 3-19=-336/208, 5-19=-313/218

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - Provide adequate drainage to prevent water ponding.
 - All plates are 1.5x4 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 3-6-0 tall by 2-0-0 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 100 lb uplift at joint(s) 2, 25, 26, 2 except (jt=lb) 19=201, 23=123, 12=156, 17=229.
 - This truss is designed in accordance with the 2015 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.

LOAD CASE(S) Standard

July 26,2023



WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 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, DSB-89 and BCSI Building Component

Safety Information available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Wilmington C Vault
Wilmington C Vault	BE	Common Supported Gable	1	1	159737256

84 LUMBER
 ID:dZHtbK1Qa8vep8cdmqWE3MzBP2s-tyXj0pzikHOWYThiNstECCTyKLdt5iRdMZx93MyuGMV
 8.710 e Jul 10 2023 MiTek Industries, Inc. Wed Jul 26 07:19:42 2023 Page 1
 0-8-0 10-0-0 20-0-0 20-8-0
 0-8-0 10-0-0 10-0-0 0-8-0

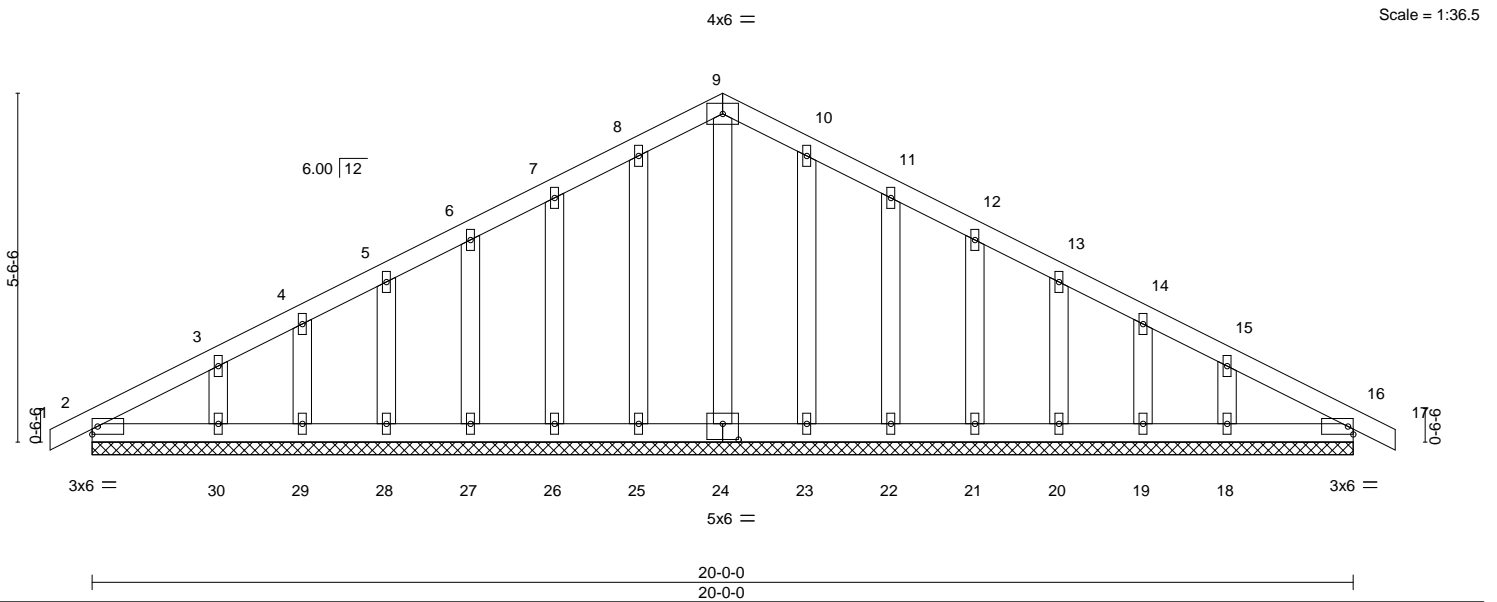


Plate Offsets (X,Y)--	[24:0-3-0,0-3-0]									
LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in (loc)	l/defl	L/d	PLATES	GRIP	
TCLL 20.0	Plate Grip DOL	1.15	TC 0.04	Vert(LL)	0.00	16	n/r	120	MT20	244/190
TCDL 10.0	Lumber DOL	1.15	BC 0.03	Vert(CT)	0.00	16	n/r	90		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.05	Horz(CT)	0.00	16	n/a	n/a		
BCDL 10.0	Code IRC2015/TPI2014		Matrix-S						Weight: 120 lb	FT = 20%

LUMBER-	BRACING-
TOP CHORD 2x4 SP No.2	TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins. [PSA]
BOT CHORD 2x4 SP No.2	BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.
OTHERS 2x4 SP No.3	

REACTIONS. All bearings 20-0-0.
 (lb) - Max Horz 2=89(LC 12)
 Max Uplift All uplift 100 lb or less at joint(s) 2, 25, 26, 27, 28, 29, 30, 23, 22, 21, 20, 19, 18
 Max Grav All reactions 250 lb or less at joint(s) 2, 24, 25, 26, 27, 28, 29, 30, 23, 22, 21, 20, 19, 18, 16

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

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph Vasd=103mph; TCCL=6.0psf; BCCL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - All plates are 1.5x4 MT20 unless otherwise indicated.
 - Gable requires continuous bottom chord bearing.
 - 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 25, 26, 27, 28, 29, 30, 23, 22, 21, 20, 19, 18.
 - This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

LOAD CASE(S) Standard

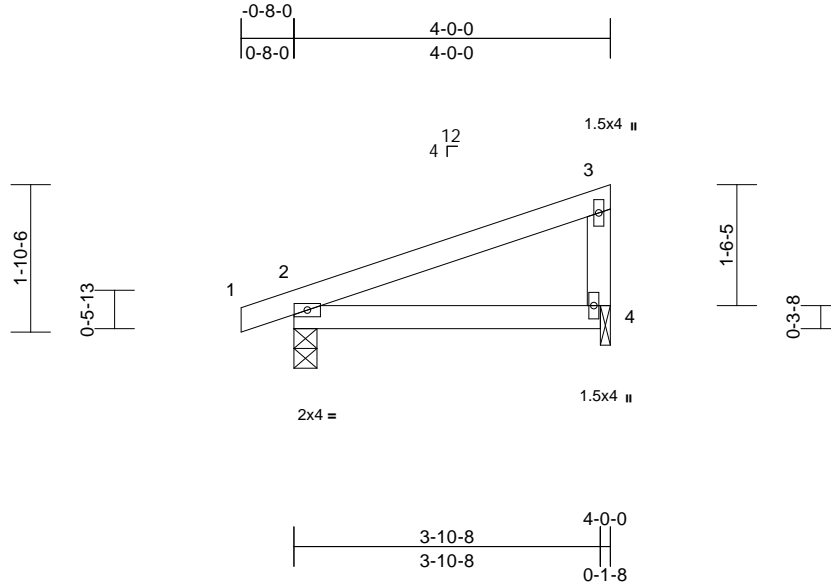


Job Wilmington C Vault	Truss D	Truss Type Monopitch	Qty 8	Ply 1	Wilmington C Vault Job Reference (optional)	159737257
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:24
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Page: 1



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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)	0.01	4-7	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.15	Vert(CT)	-0.02	4-7	>999	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.00	Horz(CT)	0.00	2	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MP							Weight: 15 lb	FT = 20%

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

7) This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.

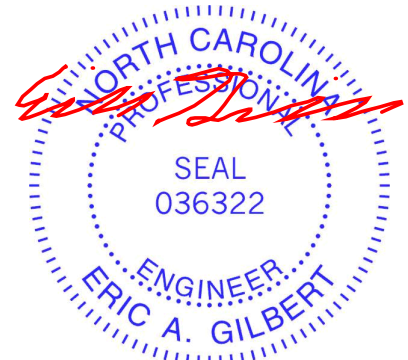
LOAD CASE(S) Standard

BRACING
TOP CHORD Structural wood sheathing directly applied or 4-0-0 oc purlins, except end verticals.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS (size) 2=0-3-8, 4=0-1-8
Max Horiz 2=61 (LC 8)
Max Uplift 2=-46 (LC 8), 4=-38 (LC 12)
Max Grav 2=198 (LC 1), 4=151 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/13, 2-3=-59/25, 3-4=-101/83
BOT CHORD 2-4=-69/51

- NOTES**
- 1) Wind: ASCE 7-10; Vult=130mph (3-second gust)
Vasd=103mph; TC DL=6.0psf; BC DL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - 2) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 - 3) * 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.
 - 4) Bearing at joint(s) 4 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
 - 5) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 4.
 - 6) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 2 and 4. This connection is for uplift only and does not consider lateral forces.



July 26, 2023

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 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, DSB-89 and BCSI Building Component

Safety Information available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601

ENGINEERING BY
TRENCO
A MiTek Affiliate

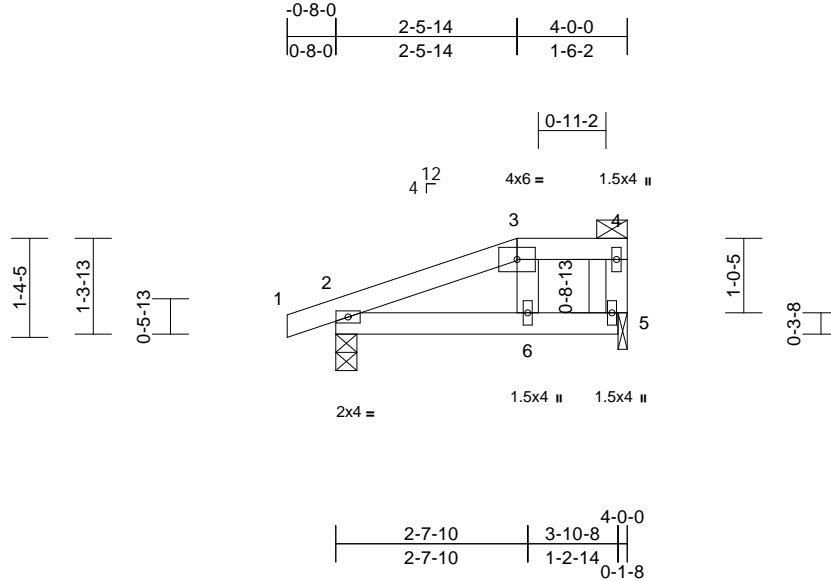
818 Soundside Road
Edenton, NC 27932

Job Wilmington C Vault	Truss D1	Truss Type Half Hip	Qty 1	Ply 1	Wilmington C Vault Job Reference (optional)	159737258
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84 Components (Dunn, NC), Dunn, NC - 28334,

Run: 8.71 S May 19 2023 Print: 8.710 S May 19 2023 MiTek Industries, Inc. Tue Jul 25 11:05:25
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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	0.12	Vert(LL)	0.02	6-9	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.29	Vert(CT)	-0.03	6-9	>999	180		
BCLL	0.0*	Rep Stress Incr	YES	WB	0.03	Horz(CT)	0.00	2	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MP							Weight: 15 lb	FT = 20%

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

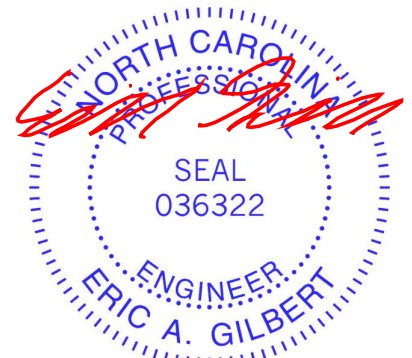
BRACING
TOP CHORD Structural wood sheathing directly applied or 4-0-0 oc purlins, except end verticals, and 2-0-0 oc purlins: 3-4.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS (size) 2=0-3-8, 5=0-1-8
Max Horiz 2=44 (LC 8)
Max Uplift 2=-52 (LC 8), 5=-31 (LC 8)
Max Grav 2=198 (LC 1), 5=151 (LC 1)

FORCES (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/13, 2-3=-52/6, 3-4=0/0, 4-5=-41/34
BOT CHORD 2-6=-36/29, 5-6=0/0
WEBS 3-6=-117/90

- NOTES**
- 1) Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) exterior zone and C-C Exterior (2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 - 2) Provide adequate drainage to prevent water ponding.
 - 3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 - 4) * 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.
 - 5) Bearing at joint(s) 5 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
 - 6) Provide mechanical connection (by others) of truss to bearing plate at joint(s) 5.

- 7) One H2.5A Simpson Strong-Tie connectors recommended to connect truss to bearing walls due to UPLIFT at jt(s) 2 and 5. This connection is for uplift only and does not consider lateral forces.
 - 8) This truss is designed in accordance with the 2015 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
 - 9) 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



July 26, 2023

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ENGINEERING BY
TRENCO
A MiTek Affiliate

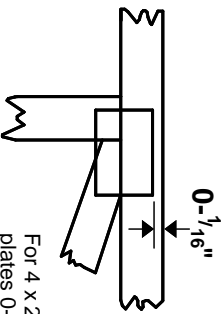
818 Soundside Road
Edenton, NC 27932

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 20/20 software** or upon request.

PLATE SIZE

4 X 4

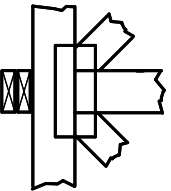
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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 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-89: Design Standard for Bracing, Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Numbering System

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



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-1311, ESR-1352, ESR1988
ER-3907, ESR-2362, ESR-1397, ESR-3282

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TP1 section 6.3 These truss designs rely on lumber values established by others.

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MITek Engineering Reference Sheet: Mill-7473 rev. 5/19/2020



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. Rewriting 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.