ENGINEERING BY
TRENCO
A MiTek Affiliate

Trenco
818 Soundside Rd
Edenton, NC 27932

Re: 19740-19740A
Charleston B Vault Master

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: I35910489 thru I35910497

My license renewal date for the state of North Carolina is December 31, 2019.

North Carolina COA: C-0844

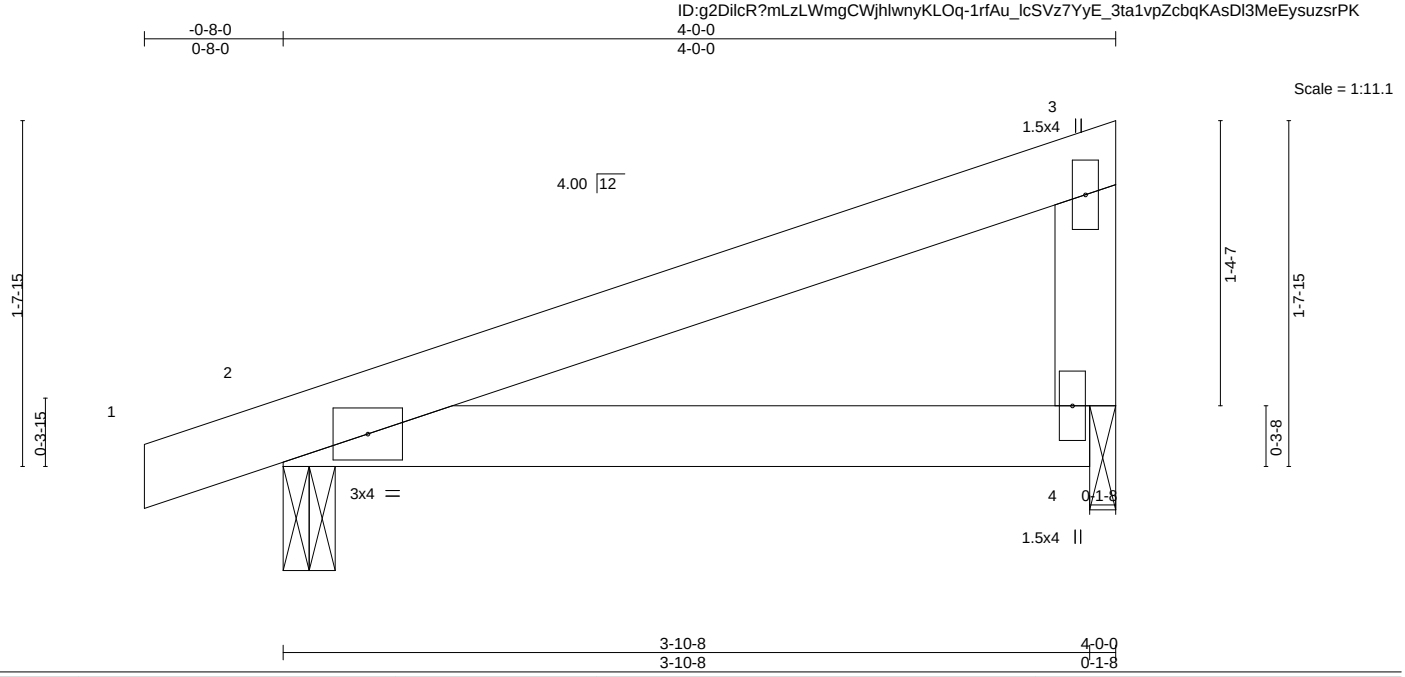
January 22,2019

Johnson, Andrew

IMPORTANT NOTE: Truss Engineer's responsibility is solely for design of individual trusses based upon design parameters shown on referenced truss drawings. Parameters have not been verified as appropriate for any use. Any location identification specified is for file reference only and has not been used in preparing design. Suitability of truss designs for any particular building is the responsibility of the building designer, not the Truss Engineer, per ANSI/TPI-1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	P1	ROOF TRUSS	8	1	I35910489
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:41 2019 Page 1
ID:g2DilcR?mLzLWmgCWjhlwnyKLOq-1rfAu_lcSVz7YyE_3ta1vpZcbqKAsDl3MeEysuzsrPK



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	0.19	Vert(LL)	0.02	4-7	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.17	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

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. (lb/size) 2=198/0-3-0, 4=151/0-1-8
Max Horz 2=45(LC 12)
Max Uplift 2=-57(LC 12), 4=-46(LC 12)

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

NOTES-
1) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=4ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(2) zone; cantilever left and right exposed ; end vertical left exposed; porch left exposed;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 3-6-0 tall by 2-0-0 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) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 4.

January 22,2019

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

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T1	ROOF TRUSS	3	1	I35910490
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:43 2019 Page 1
ID:g2DilcR?mLzLWmgCWjhlwnyKLOq-_EmwJfms_6DrnGOMBIcV_EempepGK?kLqyj2xnzsrPI

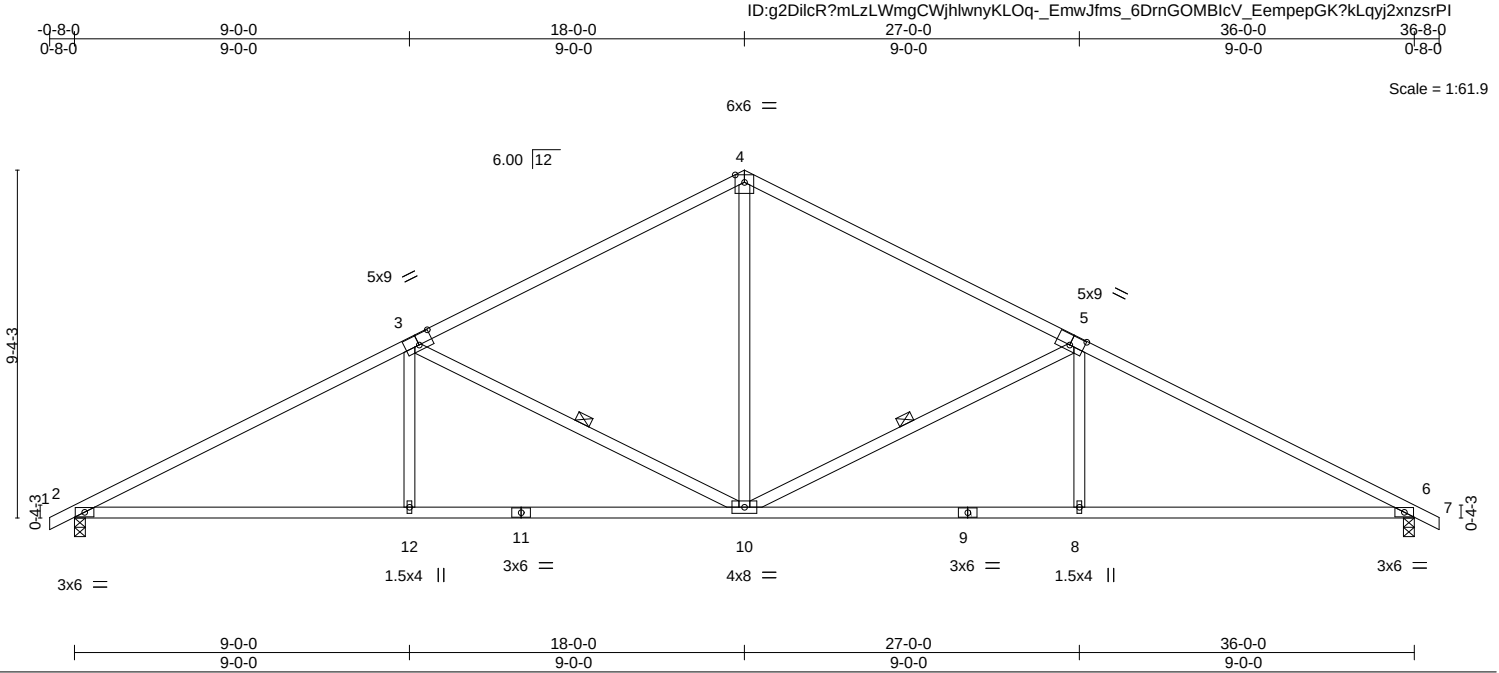


Plate Offsets (X,Y)-- [3:0-4-8,0-3-4], [5:0-4-8,0-3-4]

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	0.91	Vert(LL)	-0.18	8-18	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.97	Vert(CT)	-0.41	8-18	>999	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.48	Horz(CT)	0.12	6	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-AS							Weight: 171 lb	FT = 20%

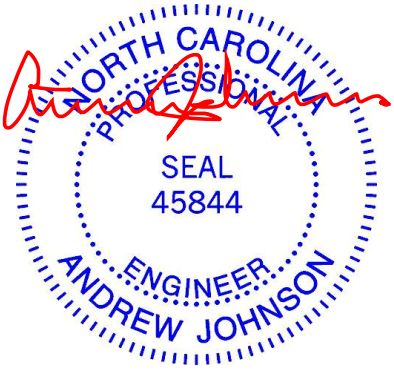
LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
WEBS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied.
WEBS 1 Row at midpt 5-10, 3-10

REACTIONS. (lb/size) 2=1480/0-3-8, 6=1480/0-3-8
Max Horz 2=-158(LC 10)
Max Uplift 2=-89(LC 12), 6=-89(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-2607/432, 3-4=-1777/377, 4-5=-1777/377, 5-6=-2607/432
BOT CHORD 2-12=-272/2268, 10-12=-276/2259, 8-10=-277/2259, 6-8=-273/2268
WEBS 4-10=-120/993, 5-10=-907/252, 5-8=0/381, 3-10=-907/252, 3-12=0/381

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=6ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 6.
6) This truss design requires that a minimum of 7/16" structural wood sheathing be applied directly to the top chord and 1/2" gypsum sheetrock be applied directly to the bottom chord.



January 22,2019

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

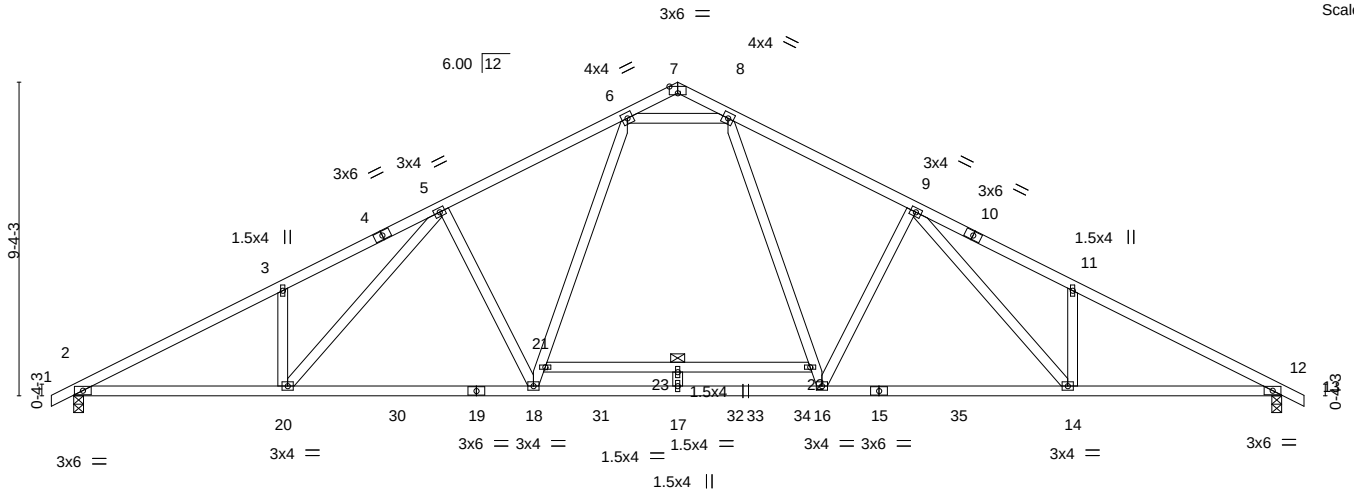
Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T1A	ROOF TRUSS	6	1	I35910491
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:44 2019 Page 1

ID:8En4zySdXf5C8vFO4RD_S?yKLOp-SQKIW?nUkQLiPQyZI?8kXSByf2Cj3SIV2cScTDzsrPH

-0-8-0	6-2-12	11-0-7	13-8-7	16-6-0	18-0-0	19-6-0	22-3-9	24-11-9	29-9-4	36-0-0	36-8-0
0-8-0	6-2-12	4-9-11	2-8-0	2-9-9	1-6-0	1-6-0	2-9-9	2-8-0	4-9-11	6-2-12	0-8-0

Scale = 1:68.7



6-2-12	13-8-7	18-0-0	22-3-9	29-9-4	36-0-0
6-2-12	7-5-11	4-3-9	4-3-9	7-5-11	6-2-12

Plate Offsets (X,Y)-- [7:0-3-0,Edge]

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	0.84	Vert(LL)	-0.27	18-20	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.82	Vert(CT)	-0.44	18-20	>980	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.46	Horz(CT)	0.12	12	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-MS							Weight: 205 lb	FT = 20%

LUMBER-

TOP CHORD	2x4 SP No.2
BOT CHORD	2x4 SP No.2
WEBS	2x4 SP No.3 *Except* 21-22: 2x4 SP No.2

BRACING-

TOP CHORD	Structural wood sheathing directly applied or 2-8-12 oc purlins.
BOT CHORD	Rigid ceiling directly applied or 10-0-0 oc bracing.
WEBS	1 Row at midpt 21-22

REACTIONS. (lb/size) 2=1480/0-3-8, 12=1480/0-3-8
Max Horz 2=-158(LC 10)
Max Uplift 2=-89(LC 12), 12=-89(LC 12)
Max Grav 2=1517(LC 28), 12=1516(LC 31)

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

TOP CHORD	2-3=-2848/438, 3-5=-2841/544, 5-6=-2142/441, 8-9=-2137/441, 9-11=-2840/544, 11-12=-2848/438
BOT CHORD	2-20=-306/2484, 18-20=-213/2079, 17-18=-94/1633, 16-17=-94/1633, 14-16=-214/2076, 12-14=-308/2483
WEBS	11-14=-328/180, 3-20=-328/180, 5-18=-592/209, 9-16=-592/209, 5-20=-145/655, 9-14=-145/656, 18-21=-96/720, 6-21=-92/728, 8-22=-92/728, 16-22=-97/720, 6-8=-1692/484

NOTES-

1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=6ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 12.
6) Load case(s) 26, 27, 28, 29, 30, 31 has/have been modified. Building designer must review loads to verify that they are correct for the intended use of this truss.
7) MULTIPLE LOADCASES – This design is the composite result of multiple load cases.
8) User moving load cases exist: Review the load cases for details.
9) ATTIC SPACE SHOWN IS DESIGNED AS UNINHABITABLE.
10) In the LOAD CASE(S) section, loads applied to the face of the truss are noted as front (F) or back (B).

LOAD CASE(S) Standard Except:
26) User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 24-27=-20(F)

January 22,2019

Continued on page 2

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

LOAD CASE(S)

27) 1st User Defined Moving Load - User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 18-24=-20(F), 18-31=-50(F=-20), 27-31=-20(F)

28) 2nd User Defined Moving Load - User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 24-31=-20(F), 17-31=-50(F=-20), 17-27=-20(F)

29) 3rd User Defined Moving Load - User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 17-24=-20(F), 17-32=-50(F=-20), 27-32=-20(F)

30) 4th User Defined Moving Load - User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 24-32=-20(F), 32-34=-50(F=-20), 27-34=-20(F)

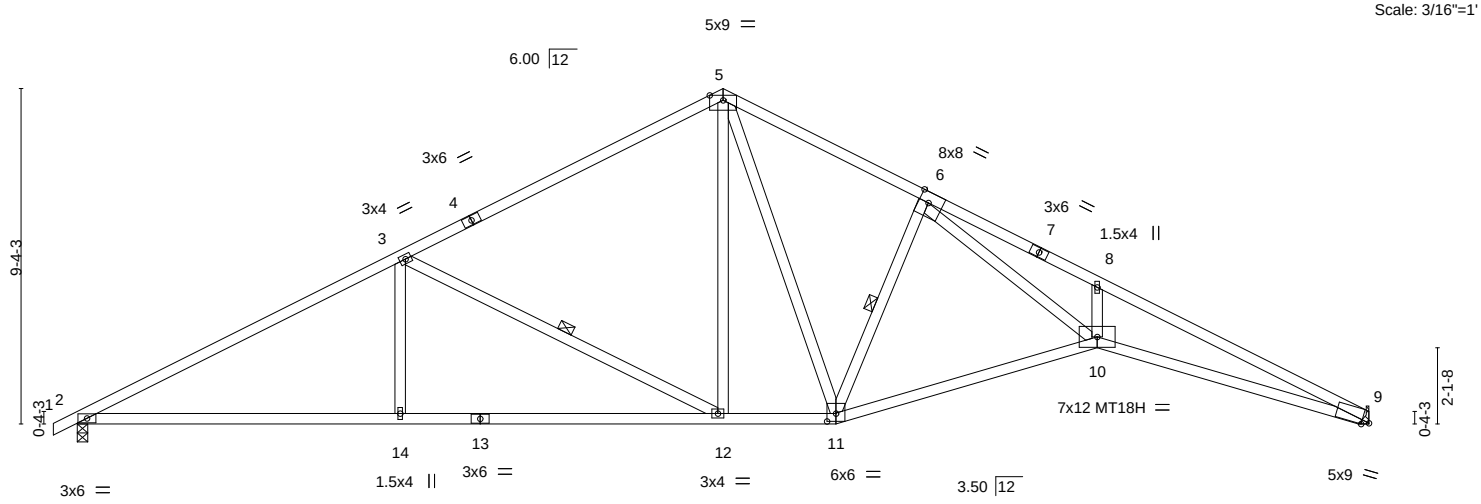
31) 5th User Defined Moving Load - User defined: Lumber Increase=1.15, Plate Increase=1.15
Uniform Loads (plf)
Vert: 1-7=-60(F), 7-13=-60(F), 24-33=-20(F), 16-33=-50(F=-20), 16-27=-20(F)

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T1B	ROOF TRUSS	9	1	I35910492
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:45 2019 Page 1
ID:TovYZYnpGMuRIoQpxe4ZtIyKLE2-wcugkLo6VjTZ0ZXIIjfz4fj7?SWxooAeHGC90fzsrPG

-0-8-0 9-0-0 18-0-0 23-7-2 28-5-2 36-0-0
0-8-0 9-0-0 9-0-0 5-7-2 4-10-1 7-6-14

Scale: 3/16"=1'



9-0-0 18-0-0 21-1-12 28-5-2 36-0-0
9-0-0 9-0-0 3-1-12 7-3-6 7-6-14

Plate Offsets (X,Y)-- [6:0-3-4,Edge], [9:0-2-7,Edge], [11:0-3-0,0-2-10]

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	0.87	Vert(LL)	-0.41	10-11	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.95	Vert(CT)	-0.89	10-11	>484	180	MT18H	244/190
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.93	Horz(CT)	0.42	9	n/a	n/a		
BCDL	10.0	Code	IRC2015/TPI2014	Matrix-AS							Weight: 184 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2 *Except* 7-9: 2x4 SP DSS
BOT CHORD 2x4 SP No.2 *Except* 9-10: 2x4 SP No.1
WEBS 2x4 SP No.3 *Except* 6-10: 2x4 SP No.2

BRACING-
TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied.
WEBS 1 Row at midpt 3-12, 6-11

REACTIONS. (lb/size) 2=1480/0-3-8, 9=1440/Mechanical
Max Horz 2=157(LC 11)
Max Uplift 2=-89(LC 12), 9=-70(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-2622/436, 3-5=-1772/378, 5-6=-1954/448, 6-8=-5671/942, 8-9=-5744/830
BOT CHORD 2-14=-291/2285, 12-14=-291/2285, 11-12=-64/1465, 10-11=-244/2261, 9-10=-689/5265
WEBS 3-14=0/392, 3-12=-931/253, 5-12=-30/559, 6-11=-1239/282, 6-10=-562/3805, 8-10=-278/193, 5-11=-156/679

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=6ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
3) All plates are MT20 plates unless otherwise indicated.
4) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
5) * 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.
6) Refer to girder(s) for truss to truss connections.
7) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 9.
8) This truss design requires that a minimum of 7/16" structural wood sheathing be applied directly to the top chord and 1/2" gypsum sheetrock be applied directly to the bottom chord.

January 22,2019

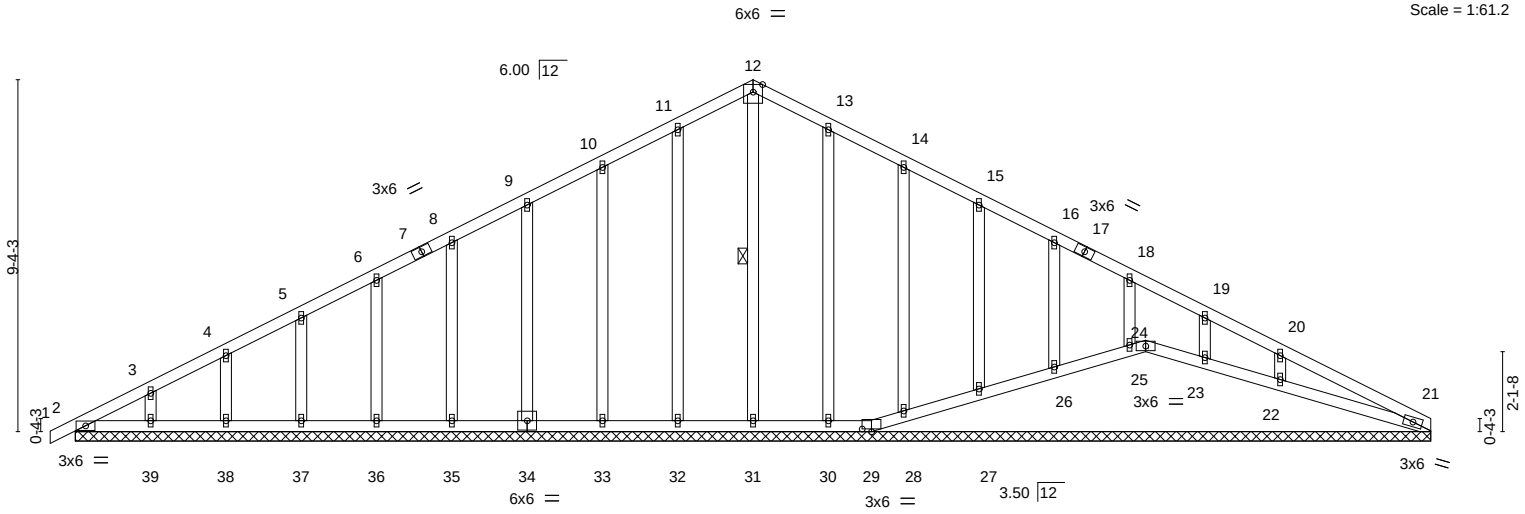
ENGINEERING BY TRENCO
A MiTek Affiliate
818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T1BGE	GABLE	1	1	I35910493
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:47 2019 Page 1
ID:1jSHD9CKvi7SL?ndLtaJDZyKL4T-s?0R91pM1LjHGth8Q7hR94peBFOIGulxlahG4YzsrPE

-0-8-0 18-0-0 36-0-0
0-8-0 18-0-0 18-0-0

Scale = 1:61.2



21-1-12 28-5-2 36-0-0
21-1-12 7-3-6 7-6-14

Plate Offsets (X,Y)-- [29:0-3-0,0-0-14]

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	0.18	Vert(LL)	-0.00	1	n/r	120	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.13	Vert(CT)	0.00	1	n/r	90		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.16	Horz(CT)	0.01	21	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-S							Weight: 220 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, Except:
6-0-0 oc bracing: 22-23.
WEBS 1 Row at midpt 12-31

REACTIONS. All bearings 36-0-0.
(lb) - Max Horz 2=158(LC 11)
Max Uplift All uplift 100 lb or less at joint(s) 2, 29, 24, 32, 33, 34, 35, 36, 37, 38, 39, 30, 28, 27, 26, 25, 23, 22
Max Grav All reactions 250 lb or less at joint(s) 2, 29, 24, 21, 31, 32, 33, 34, 35, 36, 37, 38, 39, 30, 28, 27, 26, 25, 23 except 22=329(LC 22)

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

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=2ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
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) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable requires continuous bottom chord bearing.
6) Gable studs spaced at 2-0-0 oc.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * 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.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 29, 24, 32, 33, 34, 35, 36, 37, 38, 39, 30, 28, 27, 26, 25, 23, 22.
10) Beveled plate or shim required to provide full bearing surface with truss chord at joint(s) 24, 28, 27, 26, 25, 23, 22.

January 22,2019

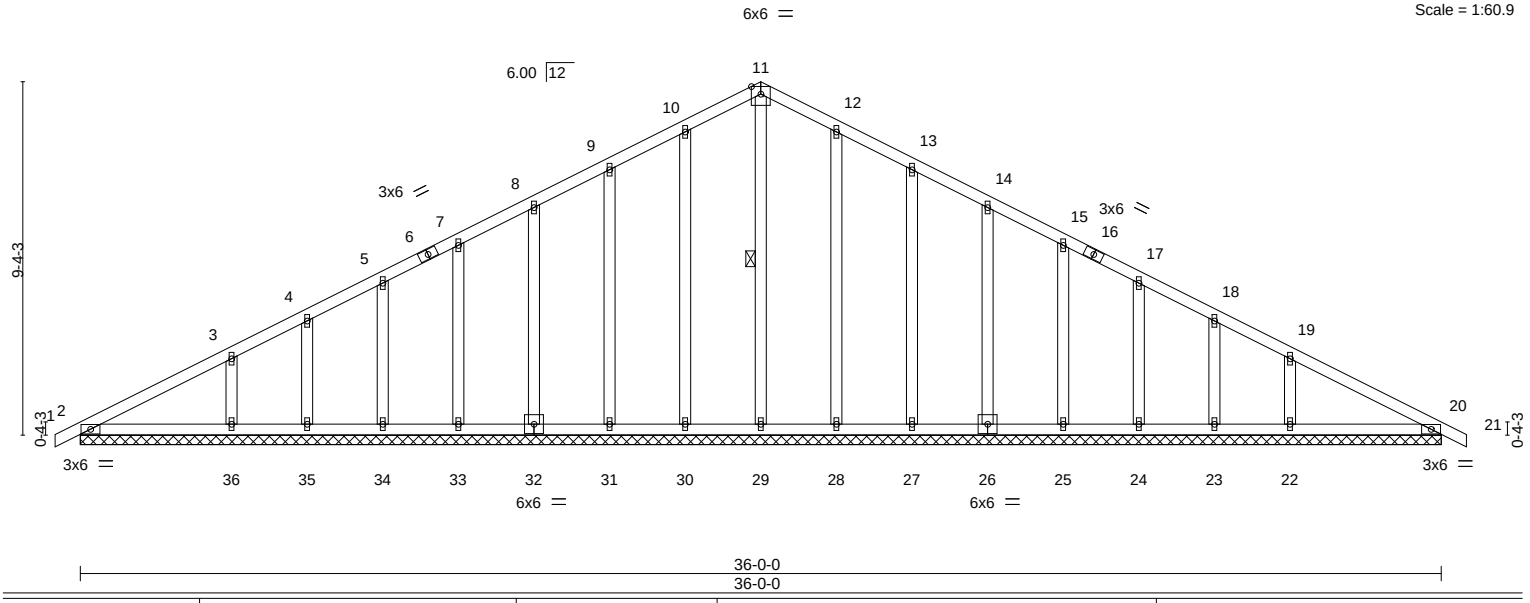
ENGINEERING BY TRENCO
A MiTek Affiliate
818 Soundside Road
Edenton, NC 27932

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T1GE	ROOF TRUSS	1	1	I35910494
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:49 2019 Page 1
ID:Vv0fRVDyg?FJz9Mpvb5YmmyKL4S-oO8BajrdZy_?VBrWXYjvEVuzW33jkoEECuAN9QzsrPC

-0-8-0 18-0-0 36-0-0 36-8-0
0-8-0 18-0-0 18-0-0 0-8-0

Scale = 1:60.9



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	0.20	Vert(LL)	0.00	21	n/r	120	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.13	Vert(CT)	0.01	21	n/r	90		
BCLL	0.0 *	Rep Stress Incr	NO	WB	0.16	Horz(CT)	0.01	20	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-S							Weight: 229 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 11-29

REACTIONS. All bearings 36-0-0.
(lb) - Max Horz 2=-158(LC 10)
Max Uplift All uplift 100 lb or less at joint(s) 30, 31, 32, 33, 34, 35, 36, 28, 27, 26, 25, 24, 23, 22
Max Grav All reactions 250 lb or less at joint(s) 2, 29, 30, 31, 32, 33, 34, 35, 28, 27, 26, 25, 24, 23, 20 except 36=320(LC 21), 22=320(LC 22)

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

NOTES-

1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=2ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
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) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable requires continuous bottom chord bearing.
6) Gable studs spaced at 2-0-0 oc.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * 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.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 30, 31, 32, 33, 34, 35, 36, 28, 27, 26, 25, 24, 23, 22.

January 22,2019

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

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T2	QUEENPOST	1	1	I35910495
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:50 2019 Page 1
ID:dRLSAISFIzD3m3pad8kD?CyKLOo-GaiZn3sFKG6s7LQj5GE8njR6TTDvTEDNRYvwhtzsrPB

-0-8-0 4-10-8 10-0-0 15-1-8 20-0-0 20-8-0
0-8-0 4-10-8 5-1-8 5-1-8 4-10-8 0-8-0

Scale = 1:43.4

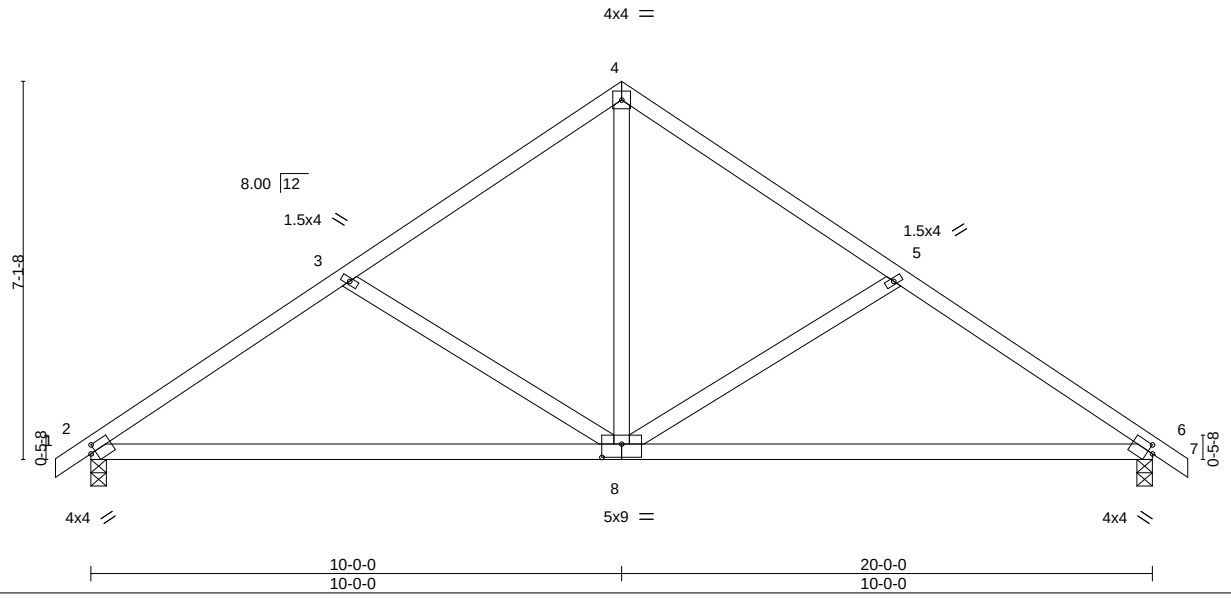


Plate Offsets (X,Y)-- [2:0-1-2,0-1-11], [6:0-1-2,0-1-11], [8:0-4-8,0-3-0]

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	0.37	Vert(LL)	-0.16	8-11	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.90	Vert(CT)	-0.33	8-11	>735	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.24	Horz(CT)	0.02	6	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-MS							Weight: 96 lb	FT = 20%

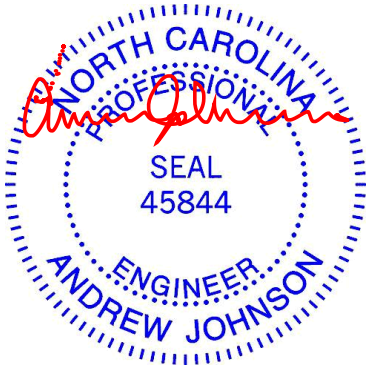
LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
WEBS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 5-3-8 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 2=840/0-3-8, 6=840/0-3-8
Max Horz 2=135(LC 11)
Max Uplift 2=-58(LC 12), 6=-58(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-1109/157, 3-4=-846/132, 4-5=-846/132, 5-6=-1109/157
BOT CHORD 2-8=-52/891, 6-8=-53/891
WEBS 3-8=-328/147, 4-8=-31/587, 5-8=-329/147

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=4ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 6.



January 22,2019

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

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T2GR	HOWE	1	2	I35910496
					Job Reference (optional)

84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:52 2019 Page 1
ID:5duqNeTt3GLvNDOnBsFTXQyKLOn-DzpKCktVstMaMea5DhHcs8WJRGzTxzvgusO1llzsrP9

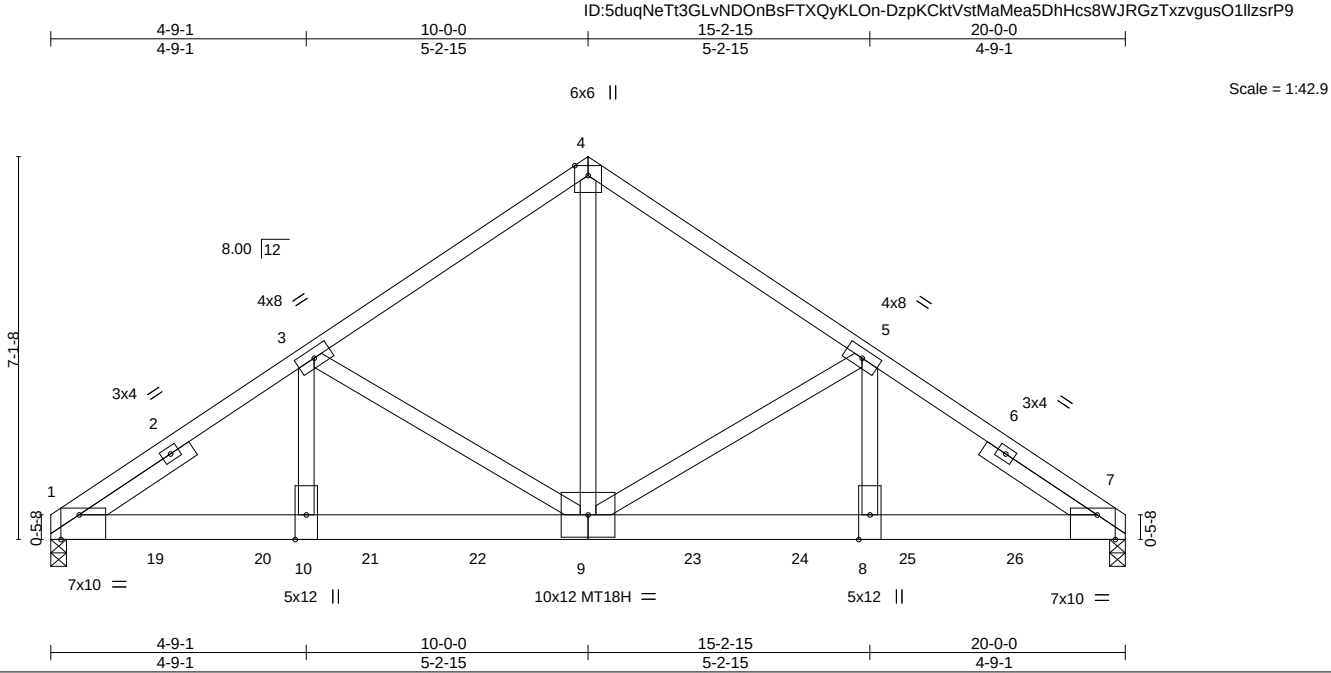


Plate Offsets (X,Y)-- [1:0-3-2,0-2-2], [1:0-4-1,Edge], [7:0-3-2,0-2-2], [7:0-4-1,Edge]

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	0.86	Vert(LL)	-0.13	8-9	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.64	Vert(CT)	-0.26	8-9	>893	180	MT18H	244/190
BCLL	0.0 *	Rep Stress Incr	NO	WB	0.93	Horz(CT)	0.06	7	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-MS							Weight: 251 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x6 SP DSS
WEBS 2x4 SP No.3 *Except*
4-9: 2x4 SP No.2
SLIDER Left 2x4 SP No.3 2-5-7, Right 2x4 SP No.3 2-5-7

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

REACTIONS. (lb/size) 1=7177/0-3-8 (req. 0-4-4), 7=7177/0-3-8 (req. 0-4-4)
Max Horz 1=-125(LC 31)
Max Uplift 1=-405(LC 12), 7=-405(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 1-3=-10634/678, 3-4=-7243/515, 4-5=-7243/515, 5-7=-10634/678
BOT CHORD 1-10=-501/8791, 9-10=-501/8791, 8-9=-501/8791, 7-8=-501/8791
WEBS 3-10=-146/3453, 4-9=-457/7607, 5-8=-146/3453, 3-9=-3314/281, 5-9=-3314/281

NOTES-
1) 2-ply truss to be connected together with 10d (0.120"x3") nails as follows:
Top chords connected as follows: 2x4 - 1 row at 0-7-0 oc.
Bottom chords connected as follows: 2x6 - 2 rows staggered at 0-6-0 oc.
Webs connected as follows: 2x4 - 1 row at 0-9-0 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.
4) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=4ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(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
5) All plates are MT20 plates unless otherwise indicated.
6) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
7) * 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.
8) WARNING: Required bearing size at joint(s) 1, 7 greater than input bearing size.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 1=405, 7=405.
10) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 1420 lb down and 90 lb up at 2-0-0, 1420 lb down and 90 lb up at 4-0-0, 1420 lb down and 90 lb up at 6-0-0, 1420 lb down and 90 lb up at 8-0-0, 1420 lb down and 90 lb up at 10-0-0, 1420 lb down and 90 lb up at 12-0-0, 1420 lb down and 90 lb up at 14-0-0, and 1420 lb down and 90 lb up at 16-0-0, and 1420 lb down and 90 lb up at 18-0-0 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.

January 22,2019

LOAD CASE(S) Standard

Continued on page 2

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

LOAD CASE(S) Standard

1) Dead + Roof Live (balanced): Lumber Increase=1.15, Plate Increase=1.15
   Uniform Loads (plf)
      Vert: 11-15=-20, 1-4=-60, 4-7=-60
   Concentrated Loads (lb)
      Vert: 9=-1420(F) 19=-1420(F) 20=-1420(F) 21=-1420(F) 22=-1420(F) 23=-1420(F) 24=-1420(F) 25=-1420(F) 26=-1420(F)

Job	Truss	Truss Type	Qty	Ply	Charleston B Vault Master
19740-19740A	T3GE	ROOF TRUSS	1	1	I35910497
					Job Reference (optional)

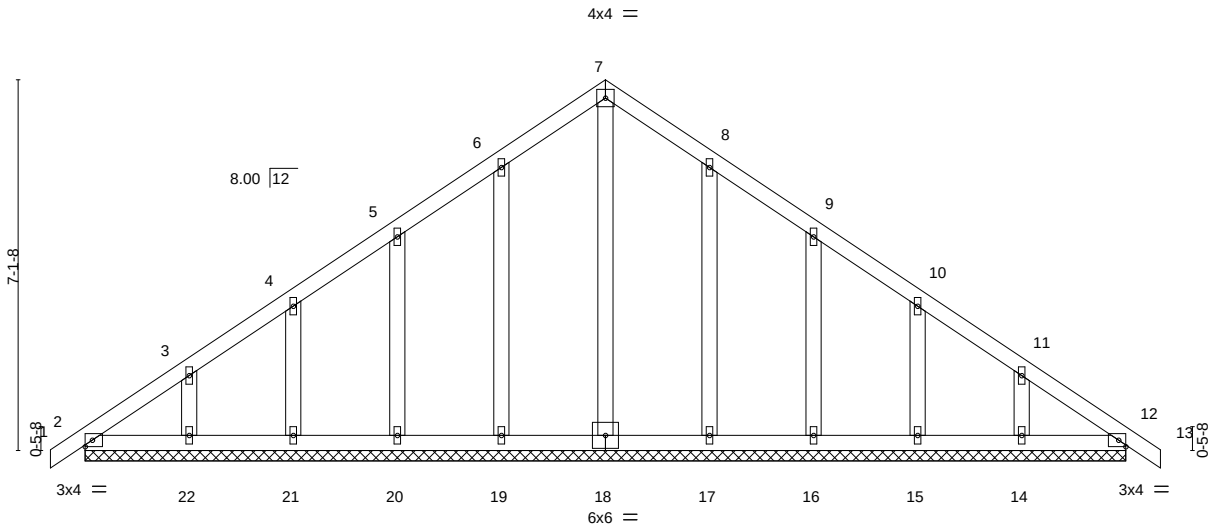
84 Components, Dunn, NC - 28334, 8.220 s Nov 16 2018 MiTek Industries, Inc. Tue Jan 22 09:28:53 2019 Page 1

ID:Vv0fRVDyg?FJz9Mpvb5YmmyKL4S-h9NiP4u7dBUQ_o8HmOorOL3hkgS7gdGq7W8aICzsrP8

-0-8-0 10-0-0 20-0-0 20-8-0

0-8-0 10-0-0 10-0-0 0-8-0

Scale = 1:44.3



20-0-0

20-0-0

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	0.05	Vert(LL)	0.00	12	n/r	120	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.04	Vert(CT)	0.00	12	n/r	90		
BCLL	0.0 *	Rep Stress Incr	NO	WB	0.09	Horz(CT)	0.00	12	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-S							Weight: 117 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. All bearings 20-0-0.
(lb) - Max Horz 2=-135(LC 10)
Max Uplift All uplift 100 lb or less at joint(s) 2, 19, 20, 21, 22, 17, 16, 15, 14
Max Grav All reactions 250 lb or less at joint(s) 2, 18, 19, 20, 21, 22, 17, 16, 15, 14, 12

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

NOTES-

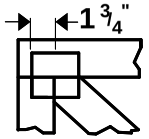
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=120mph (3-second gust) Vasd=95mph; TCDL=6.0psf; BCDL=6.0psf; h=30ft; B=45ft; L=45ft; eave=2ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(2) zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
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) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable requires continuous bottom chord bearing.
6) Gable studs spaced at 2-0-0 oc.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * 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.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 19, 20, 21, 22, 17, 16, 15, 14.

January 22,2019

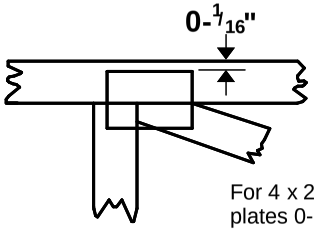
ENGINEERING BY TRENCO
A MiTek Affiliate
818 Soundside Road
Edenton, NC 27932

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.

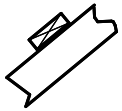
*** Plate location details available in MiTek 20/20 software or upon request.**

PLATE SIZE

4 x 4

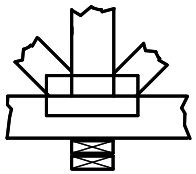
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

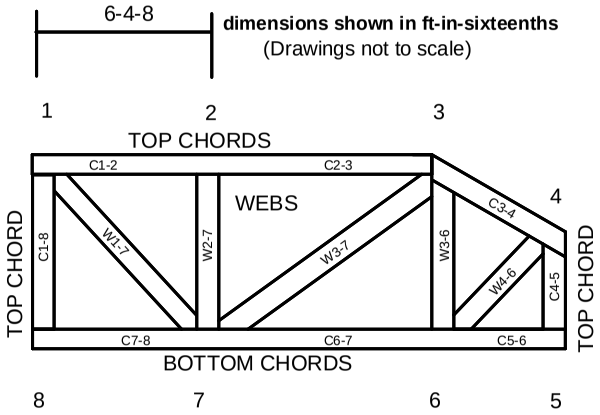


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-89: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Numbering System



JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

PRODUCT CODE APPROVALS

ICC-ES Reports:

ESR-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/TPI 1 section 6.3 These truss designs rely on lumber values established by others.

MiTek®

ENGINEERING BY TRENCO
A MiTek Affiliate

MiTek Engineering Reference Sheet: MII-7473 rev. 10/03/2015

General Safety Notes

Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TPI 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TPI 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TPI 1 Quality Criteria.