APPROVED
Limited building only review
Permit holder responsible for
full compliance with the code
NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes
and is subject to field inspection and verification.

Harnett COUNTY NORTH CAROLINA

03/16/2020

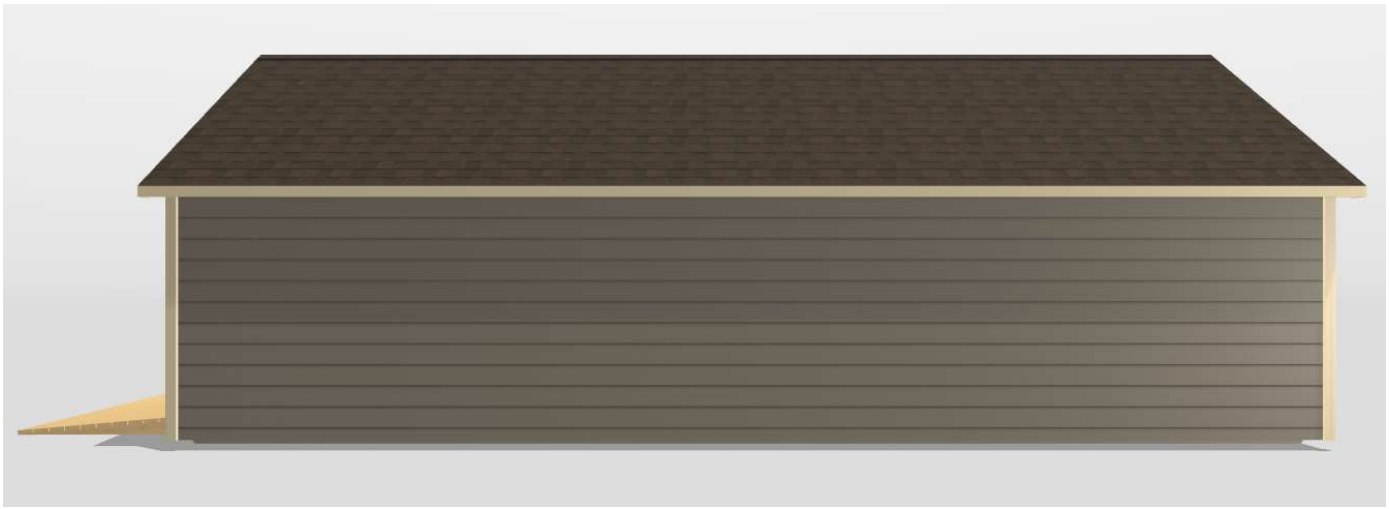
Updated Workshop Plan

Timothy Sain
239 Lasater Rd.
Bunnlevel NC 28323

Building Size: 16’ x 32’
Total Sq. Ft. 512 Sq.Ft.
Wall Height: 8’ 4 ½”
Overall Height: 12’7”
Roof Style: Gable
Roof Pitch: 5.5/12
Garage Door: 9’x7’ Wind Speed: < 120 mph
Side Door: 36” x 80”
Side windows (2): 24” x 36”
Framing: 2”x4” 16” OC
Foundation: Concrete Slab 6” above grade

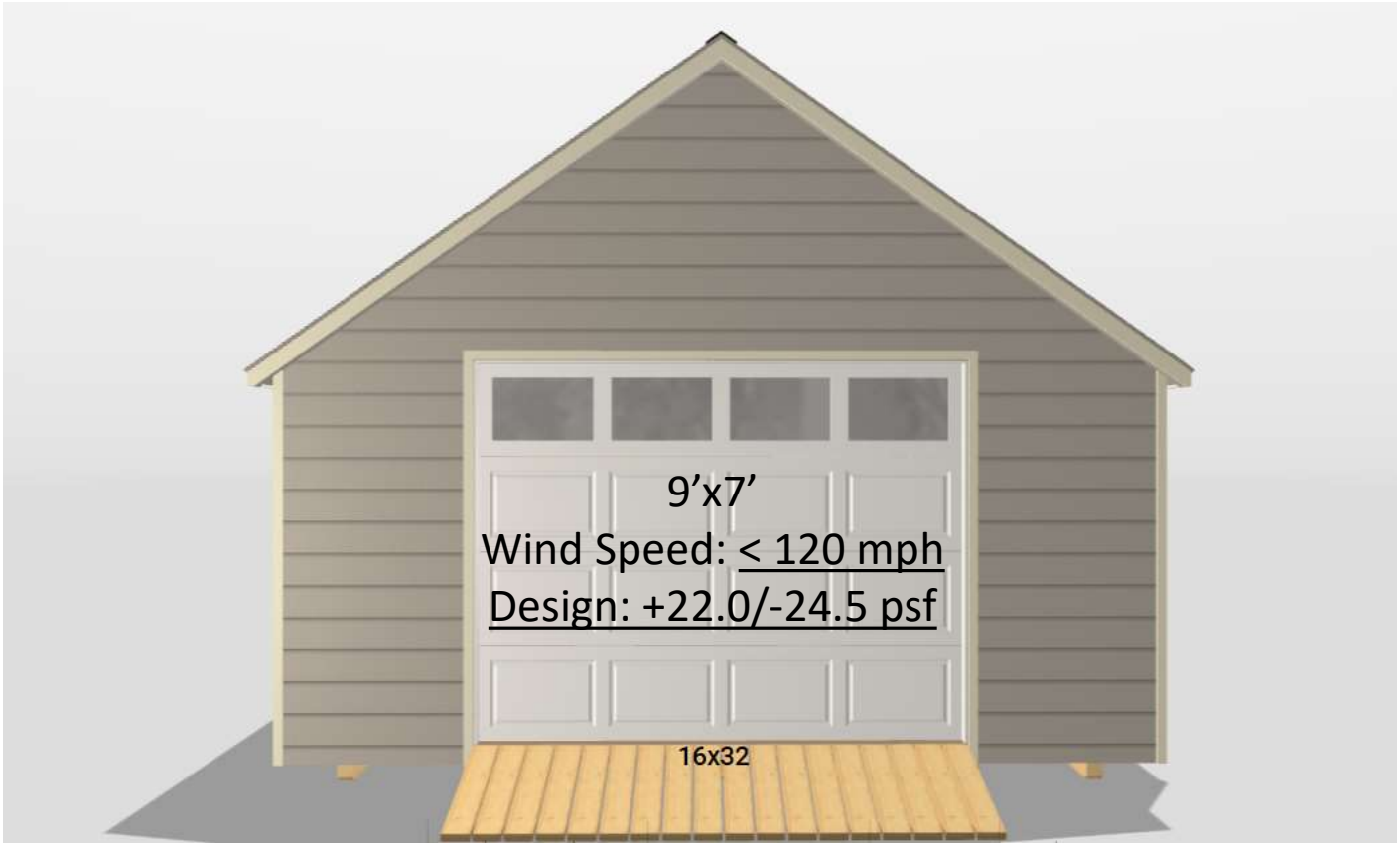
Front Elevation

Rear Elevation



Back Wall

Garage Wall



Foundation

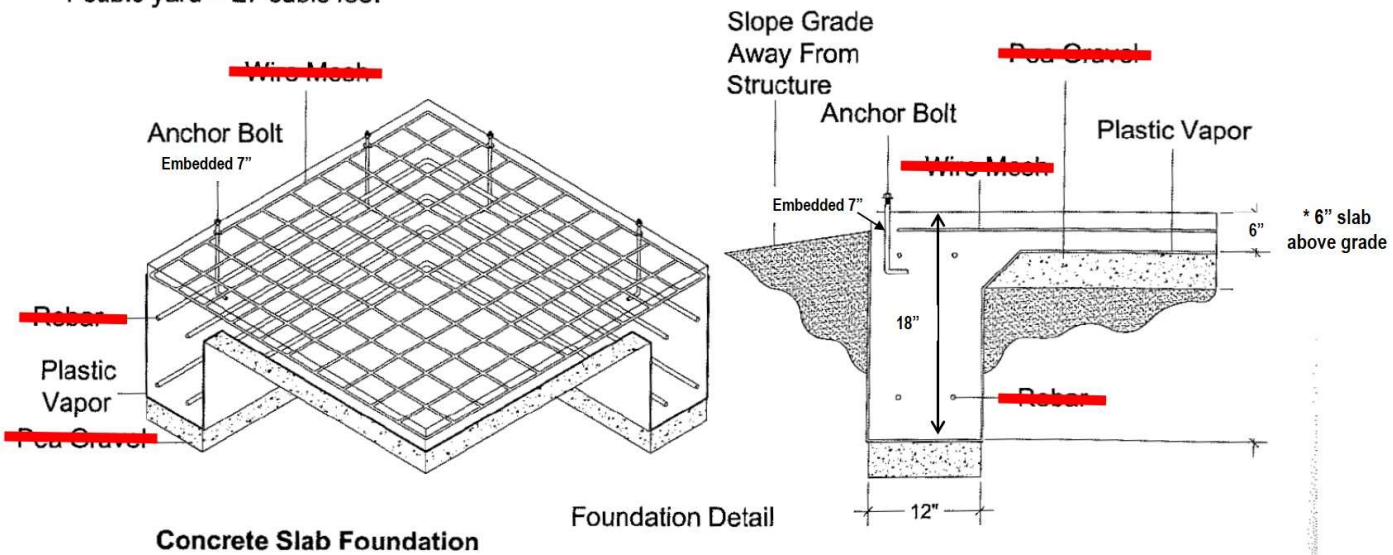
Material for Foundation

- [redacted]
- [redacted]
- [redacted]
- Premixed Concrete .... 12 cubic yards*
- ½" x 10" Anchor Bolt 40

* 1 cubic yard = 27 cubic feet

Tools Needed for Concrete

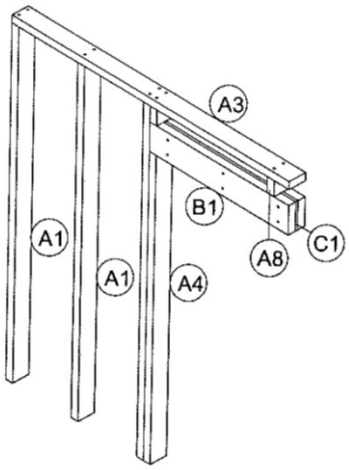
Batter boards (2x2 stake and 1x4 batter board), 2x6 form boards, 2x2 stake, mason's line, spade or small shovel, concrete finishing trowel, hammer, level, measuring tape, pencil, carpenters square, wheelbarrow, bucket.

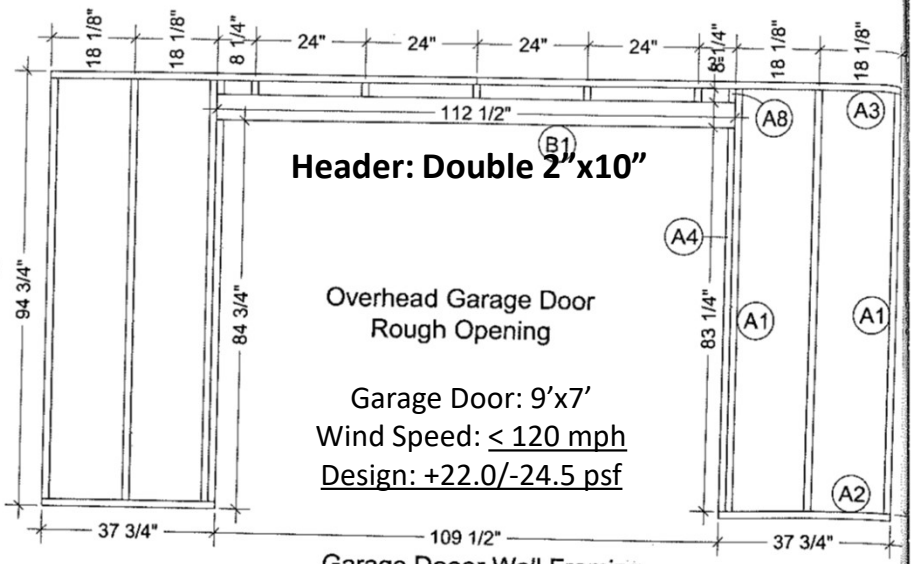


Foundation Detail

Concrete Slab Foundation

Typically a slab 4 inches thick lay over a sub base of 4 inches of gravel or crushed rock is sufficient but may vary depending on your geographic location. Using either mix your own concrete of having it delivered by truck, ready to pour, depends on how much time and effort you have to dedicate to the project.





Header: Double 2"x10"

Overhead Garage Door
Rough Opening

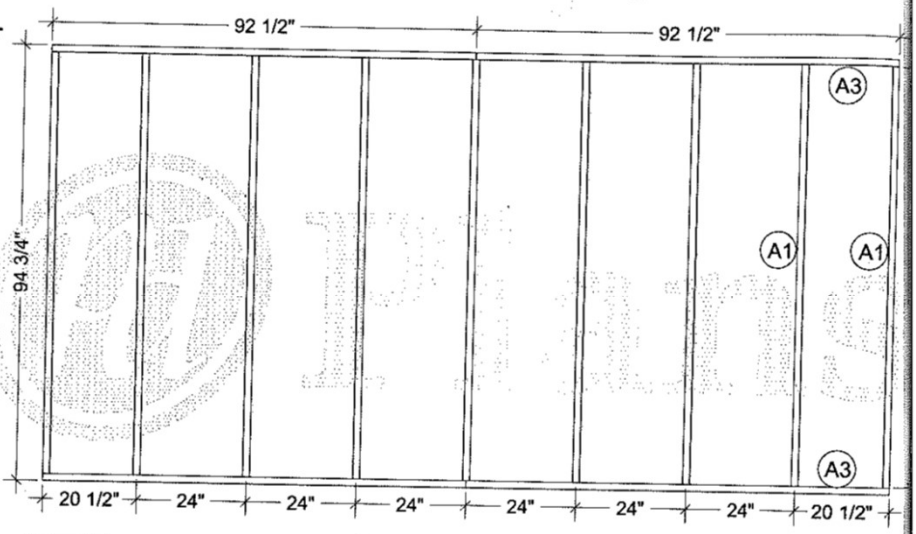
Garage Door: 9'x7'
Wind Speed: < 120 mph
Design: +22.0/-24.5 psf

Garage Dooor Wall Framing

Rough Opening

The rough opening of door and window should be ½" to ¾" larger than actual sizes (consult the manufacturer's instruction sheet for the recommended gap before frame the wall). This extra space lets you wedge in shims to adjust the unit for level and plumb.

Most of garage door rough opening is the same size as actual size. Add ¾" spaces for trimmers.



Back Wall Framing

Wall Frame Cutting List

Code	Descriptions	Dimension	Qty
A1	Stud	91¾"	41
A2	37¾" Plate	37¾"	2
A3	92½" Plate	92½"	6
A4	83¼" Door Stud	83¼"	2
A5	144" Plate	144"	8
A6	81" Door Stud	81"	2
A7	38½" Win. Stud	38½"	2
A8	3" Jack Stud	3"	7
A9	5¼" Jack Stud	5¼"	4
A10	41" Jack Stud	41"	1
B1	112½" Header	112½"	2
B2	33½" Header	33½"	2
B3	31½" Header	31½"	2
C1	112½" Spacer	5½"x112½"	1
C2	33½" Spacer	5½ x 33½"	1
C3	31½" Spacer	5½ x 31½"	1

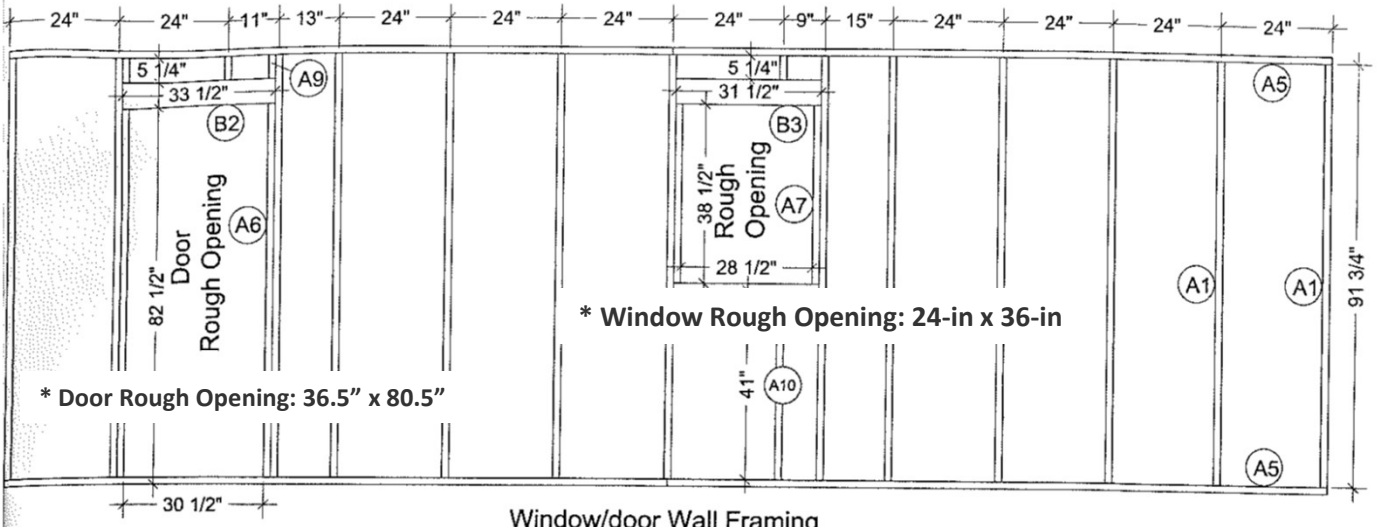
Build The Wall

1. On bottom plats (A2), (A3) & (A5) mark the center of anchor locations, drill Ø⅜" through holes. Test- fit bottom plats making sure all anchor bolts are into the plat holes. The plat are flush to the outside of the concrete edges.
2. *Garage door wall framing:* Layout plats (A2) & (A3) and studs (A1) as shown.
3. Using 3" 10d nails, nail twice through each (A2) & (A3) into each end of each (A1), keeping pieces flush at top and ends, and maintain dimension spacing as shown.
4. Then layout the garage door rough opening, door studs (A4), jack studs (A8) and door double headers (B1) with plywood spacer (C1).
5. Using 3" 10d nails, nail twice through each of them into each end.
6. Repeat steps 2-6, build remaining wall framing according to the diagram.

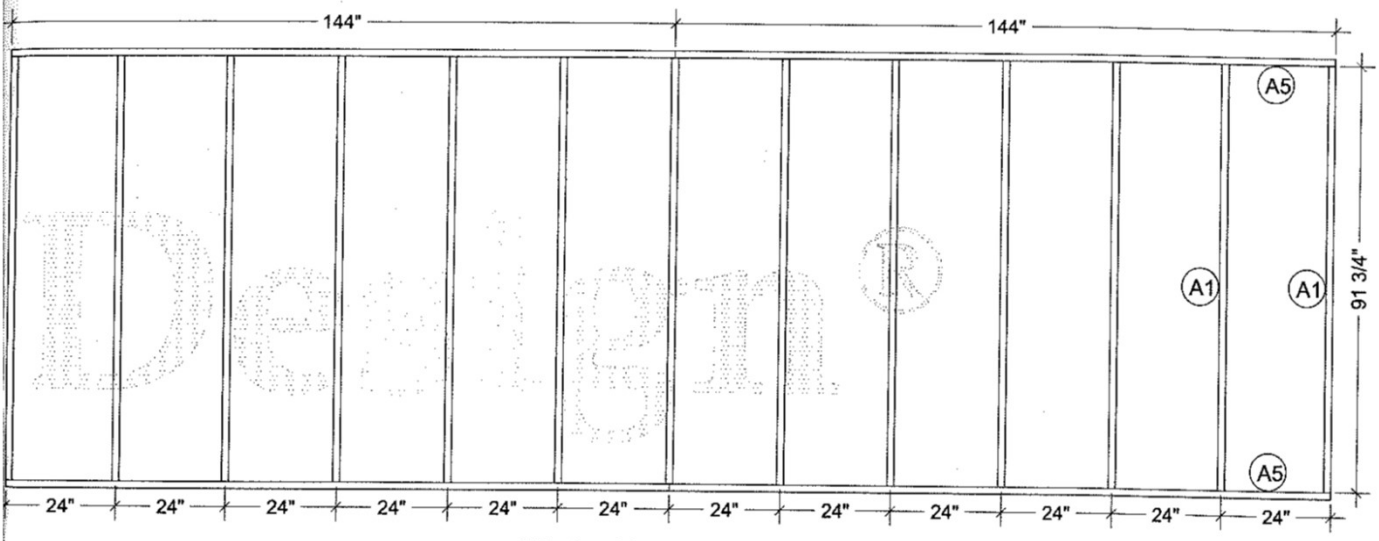
Common: 36-in x 80-in

Door Header: Double 2”x8”

Window Header: Double 2”x 6”



Window/door Wall Framing



Window Wall Framing

Wall Bracing: CWP

Job	Truss	Truss Type	Qty	Ply	Tim Sain / Harnett Co.
B0320-1097	A1	COMMON	15	1	Job Reference (optional)

Comtech, Inc., Fayetteville, NC 28309, Dwayne Naylor — Run: 8.300 s Mar 22 2019 Print: 8.300 s Mar 22 2019 MiTek Industries, Inc. Tue Mar 10 16:47:34 2020 Page 1
ID:L31KcBaX600QVGAyh2lyQLzccNu-w2g1qKepZ1ZYDEX_qPfPu?pY1iB5XDwTTacgOfzcI2N

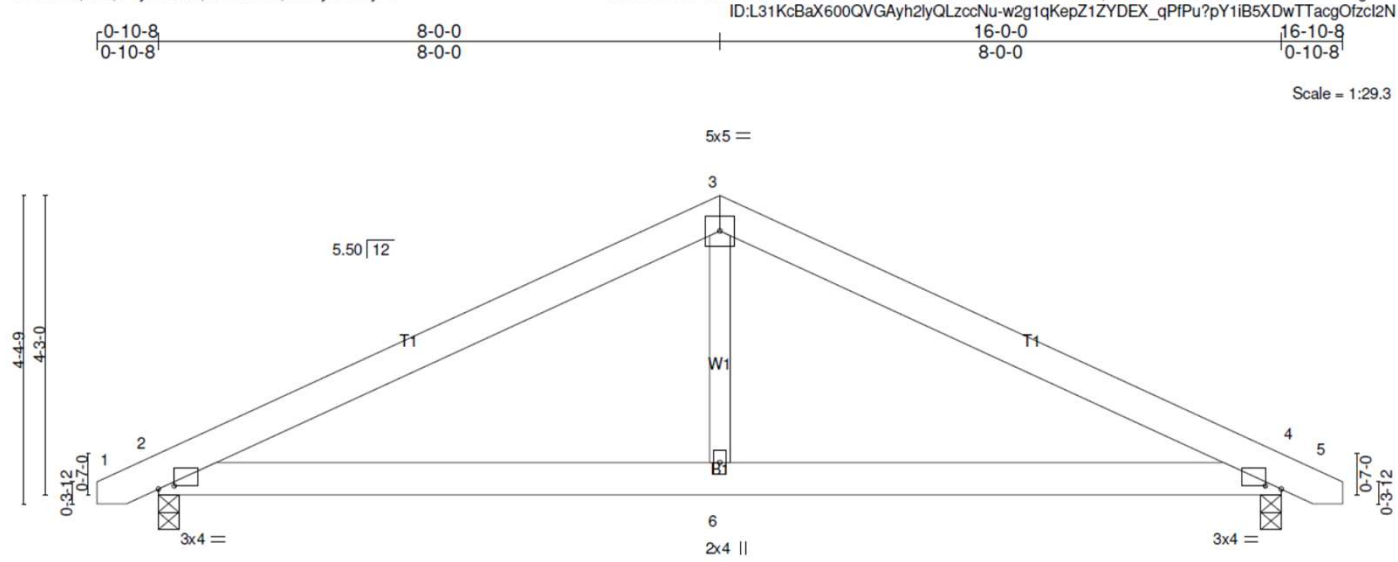


Plate Offsets (X,Y)-- [2:0-2-11,0-0-9], [4:0-2-11,0-0-9]

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	0.29	Vert(LL)	-0.02	2-6	>999	360	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.24	Vert(CT)	-0.06	4-6	>999	240		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.09	Horz(CT)	0.01	4	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-S		Wind(LL)	0.02	2-6	>999	240	Weight: 88 lb	FT = 20%

LUMBER-
TOP CHORD 2x6 SP No.1
BOT CHORD 2x6 SP No.1
WEBS 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.

MiTek recommends that Stabilizers and required cross bracing be installed during truss erection, in accordance with Stabilizer Installation guide.

REACTIONS. (size) 2=0-3-8 (min. 0-1-8), 4=0-3-8 (min. 0-1-8)
Max Horz 2=-48(LC 17)
Max Uplift2=-50(LC 12), 4=-50(LC 13)
Max Grav 2=677(LC 1), 4=677(LC 1)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-934/250, 3-4=-934/247
BOT CHORD 2-6=-104/755, 4-6=-104/755
WEBS 3-6=0/380

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=15ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) and C-C Exterior(2) -0-8-0 to 3-8-13, Interior(1) 3-8-13 to 8-0-0, Exterior(2) 8-0-0 to 12-4-13, Interior(1) 12-4-13 to 16-8-0 zone;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 with a clearance greater than 6-0-0 between the bottom chord and any other members.
5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 50 lb uplift at joint 2 and 50 lb uplift at joint 4.
6) 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.
7) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.

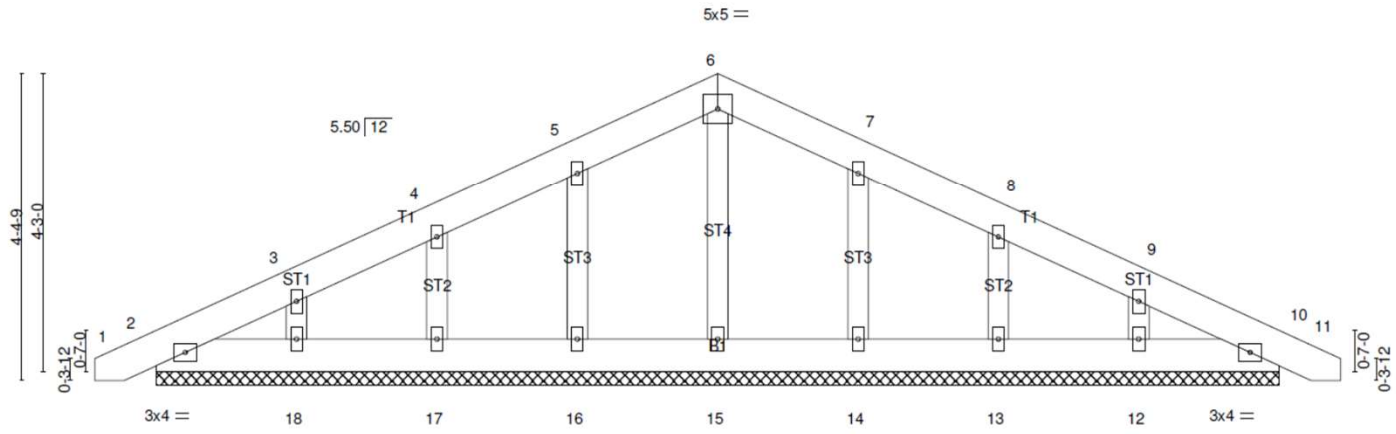
LOAD CASE(S) Standard

Job	Truss	Truss Type	Qty	Ply	Tim Sain / Harnett Co.
B0320-1097	A1GE	COMMON SUPPORTED GAB	2	1	Job Reference (optional)

Comtech, Inc., Fayetteville, NC 28309, Dwayne Naylor — Run: 8.300 s Mar 22 2019 Print: 8.300 s Mar 22 2019 MiTek Industries, Inc. Tue Mar 10 16:47:35 2020 Page 1
ID:L31KcBaX600QVGAyh2lyQLzccNu-PEEP1gfRJKhPrO6AO7AeRCMnx6ZwGh?chEMDw6zcl2M

0-10-8 | 8-10-8 | 16-10-8 | 17-9-0
0-10-8 | 8-0-0 | 8-0-0 | 0-10-8

Scale = 1:29.3



0-10-8 | 16-10-8 | 17-9-0
0-10-8 | 16-0-0 | 0-10-8

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	0.03	Vert(LL)	0.00	10	n/r	120	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.01	Vert(CT)	0.00	10	n/r	120		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.03	Horz(CT)	0.00	10	n/a	n/a		
BCDL	10.0	Code IRC2015/TPI2014		Matrix-S							Weight: 102 lb	FT = 20%

LUMBER-
TOP CHORD 2x6 SP No.1
BOT CHORD 2x6 SP No.1
OTHERS 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.

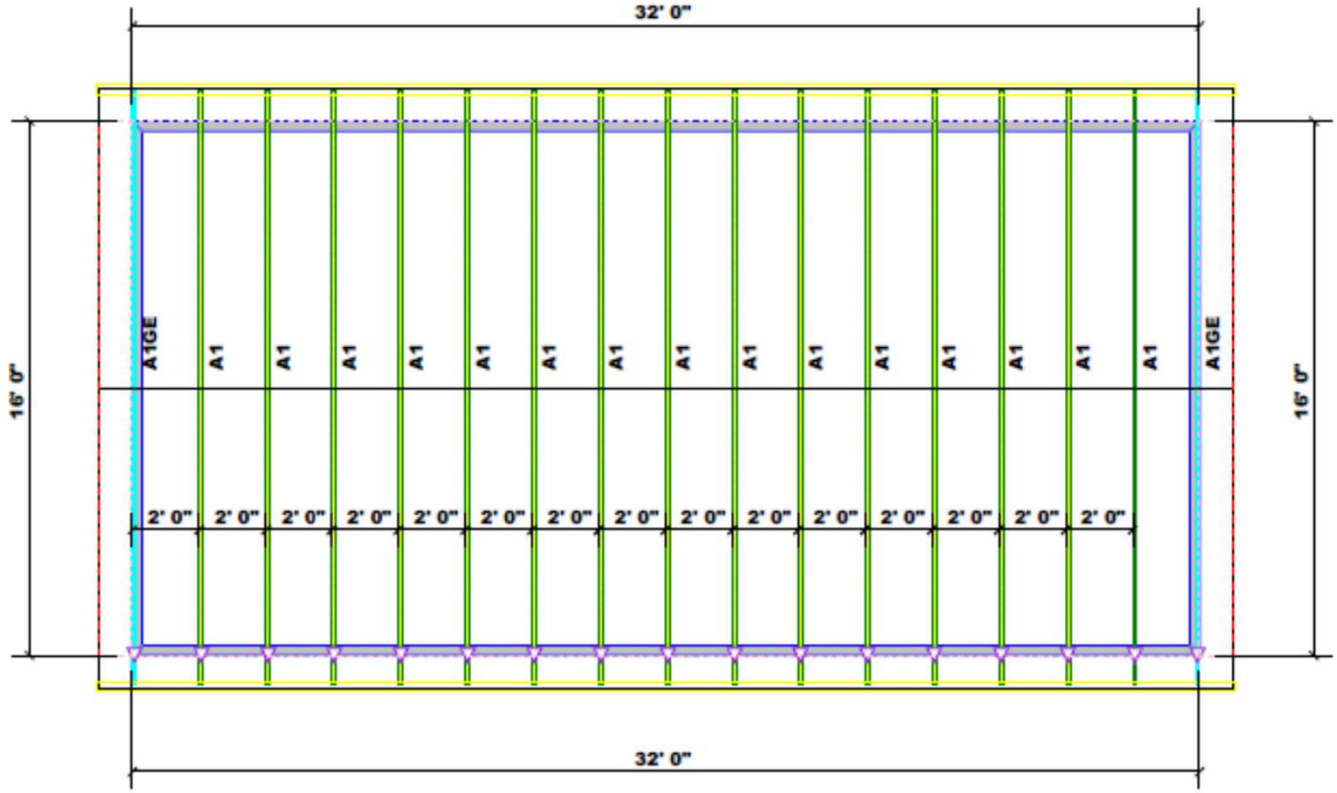
MiTek recommends that Stabilizers and required cross bracing be installed during truss erection, in accordance with Stabilizer Installation guide.

REACTIONS. All bearings 16-0-0.
(lb) - Max Horz 2=-80(LC 17)
Max Uplift All uplift 100 lb or less at joint(s) 2, 10, 16, 17, 18, 14, 13, 12
Max Grav All reactions 250 lb or less at joint(s) 2, 10, 15, 16, 17, 18, 14, 13, 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=130mph (3-second gust) Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=15ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Corner(3) -0-8-0 to 4-0-0, Exterior(2) 4-0-0 to 8-0-0, Corner(3) 8-0-0 to 12-4-13, Exterior(2) 12-4-13 to 16-8-0 zone;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 2x4 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 with a clearance greater than 6-0-0 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, 10, 16, 17, 18, 14, 13, 12.
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.
11) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.

LOAD CASE(S) Standard



Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Dwayne Naylor

Dwayne Naylor

TRUSS PLACEMENT PLAN

SCALE: 3/16" = 1'-0"

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.

These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com

comtech

ROOF & FLOOR TRUSSES & BEAMS

Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

LOAD CHART FOR JACK STUDS

1400	1	2560	1	3600	1
3400	2	5300	2	6800	2
5300	3	7650	3	10200	3
6800	4	10200	4	13600	4
8800	5	12750	5	17000	5
10200	6	15400	6		
11900	7				
13600	8				
15300	9				

BUILDER	Cash Tim Sain
JOB NAME	Tim Sain / Harnett Co.
PLAN	16x32 bldg.
SEAL DATE	Seal Date
QUOTE #	80320-1097
JOB #	
CITY / CO.	Harnett Co. / Harnett
ADDRESS	16x32 Bldg.
MODEL	Roof
DATE REV.	03/10/20
DRAWN BY	Dwayne Naylor
SALES REP.	Dwayne Naylor