

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ www.floridabuilding.org

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
1. EXTERIOR DOORS			
A. SWINGING	Masonite International	6' x 8' Glazed 1/5 + 4/5 Door	5415.1
B. SLIDING		6' x 8' Smooth Fiberglass No Glass	15219
C. SECTIONAL/ROLL UP			
D. OTHER			
2. WINDOWS			
A. SINGLE/DOUBLE HUNG	MI	Vinyl Window Single Hung	17499-R5
B. HORIZONTAL SLIDER	MI	Vinyl Window Horizontal Slider	13349-R6
C. CASEMENT			
D. FIXED	MI	Vinyl Window Fixed	15349.1
E. MULLION			
F. SKYLIGHTS			
G. OTHER			
3. PANEL WALL			
A. SIDING	James Hardie	Fiber Cement 14p siding	13192.2
B. SOFFITS	Kaycan LTD	16" Vented Alum soffit	13192.2 16503
C. STURTEFRONTS			
D. GLASS BLOCK			
E. OTHER			
4. ROOFING PRODUCTS			
A. ASPHALT SHINGLES			
B. NON-STRUCT METAL	- First County Metals	24GA over 1/2" Plywood	4595.19 04
C. ROOFING TILES			
D. SINGLE PLY ROOF			
E. OTHER	Rhino	underlayment	15216
5. STRUCT COMPONENTS			
A. WOOD CONNECTORS			
B. WOOD ANCHORS			
C. TRUSS PLATES			
D. INSULATION FORMS			
E. LINTELS			
F. OTHERS			
6. NEW EXTERIOR ENVELOPE PRODUCTS			

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite, 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements. Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

NOTES _____



**COLUMBIA COUNTY BUILDING DEPARTMENT
RESIDENTIAL CHECK LIST**

MINIMUM PLAN REQUIREMENTS: FLORIDA BUILDING CODE RESIDENTIAL 2017 EFFECTIVE 1 JANUARY 2018
AND THE NATIONAL ELECTRICAL 2014 EFFECTIVE 1 JANUARY 2018

ALL REQUIREMENTS ARE SUBJECT TO CHANGE

ALL BUILDING PLANS MUST INDICATE COMPLIANCE WITH THE CURRENT FLORIDA BUILDING CODES RESIDENTIAL AND THE NATIONAL ELECTRICAL CODE. ALL PLANS OR DRAWINGS SHALL PROVIDE CALCULATIONS AND DETAILS THAT HAVE THE SEAL AND SIGNATURE OF A CERTIFIED ARCHITECT OR ENGINEER REGISTERED IN THE STATE OF FLORIDA, OR ALTERNATE METHODOLOGIES, APPROVED BY THE STATE OF FLORIDA BUILDING COMMISSION FOR ONE-AND-TWO FAMILY DWELLINGS, FBC 1609.3.1 THRU 1609.3.3.

FOR DESIGN PURPOSES THE FOLLOWING BASIC WIND SPEEDS ARE PER FLORIDA BUILDING CODE FIGURE 1609-A THROUGH 1609-C ULTIMATE DESIGN WIND SPEEDS FOR RISK CATEGORY AND BUILDINGS AND OTHER STRUCTURES

Revised 7/1/18

Website: <http://www.columbiacountyfla.com/BuildingandZoning.asp>

Items to Include-
Each Box shall be
Circled as
Applicable

**GENERAL REQUIREMENTS:
APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL**

Select From Drop down

1	Two (2) complete sets of plans containing the following:	<input checked="" type="checkbox"/>		
2	All drawings must be clear, concise, drawn to scale, details that are not used shall be marked void	<input checked="" type="checkbox"/>		
3	Condition space (Sq. Ft.)		Yes	No NA

Designers name and signature shall be on all documents and a licensed architect or engineer, signature and official embossed seal shall be affixed to the plans and documents as per the FLORIDA BUILDING CODES RESIDENTIAL 107.1.

Site Plan information including:

4	Dimensions of lot or parcel of land	<input checked="" type="checkbox"/>		
5	Dimensions of all building set backs	<input checked="" type="checkbox"/>		
6	Location of all other structures (include square footage of structures) on parcel, existing or proposed well and septic tank and all utility easements.	<input type="checkbox"/>		
7	Provide a full legal description of property.	<input checked="" type="checkbox"/>		

Wind-load Engineering Summary, calculations and any details are required.

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL		Items to Include- Each Box shall be Circled as Applicable		
8	Plans or specifications must show compliance with FBCR Chapter 3	Yes	No	NA
Select From Drop down				
9	Basic wind speed (3-second gust), miles per hour	<input checked="" type="checkbox"/>		
10	(Wind exposure – if more than one wind exposure is used, the wind exposure and applicable wind direction shall be indicated)	<input checked="" type="checkbox"/>		
11	Wind importance factor and nature of occupancy	<input checked="" type="checkbox"/>		
12	The applicable internal pressure coefficient, Components and Cladding	<input checked="" type="checkbox"/>		
13	The design wind pressure in terms of psf (kN/m ²), to be used for the design of exterior component, cladding materials not specifically designed by the registered design professional.	<input checked="" type="checkbox"/>		

Elevations Drawing including:

14	All side views of the structure	<input checked="" type="checkbox"/>		
15	Roof pitch	<input checked="" type="checkbox"/>		
16	Overhang dimensions and detail with attic ventilation	<input checked="" type="checkbox"/>		
17	Location, size and height above roof of chimneys	<input checked="" type="checkbox"/>		
18	Location and size of skylights with Florida Product Approval	<input checked="" type="checkbox"/>		
19	Number of stories	<input checked="" type="checkbox"/>		
20	Building height from the established grade to the roofs highest peak	<input checked="" type="checkbox"/>		

Floor Plan Including:

21	Dimensioned area plan showing rooms, attached garage, breeze ways, covered porches, deck, balconies	- ✓		
22	Raised floor surfaces located more than 30 inches above the floor or grade	- ✓		
23	All exterior and interior shear walls indicated	- ✓		
24	Shear wall opening shown (Windows, Doors and Garage doors)	- ✓		
25	Show compliance with Section FBCR 310 Emergency escape and rescue opening shown in each bedroom (net clear opening shown) and Show compliance with Section FBC 1405.13.2 where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches above the finished floor of the room in which the window is located. Glazing between the floor and 24 inches shall be fixed or have openings through which a 4-inch-diameter sphere cannot pass.	-		
26	Safety glazing of glass where needed	- ✓		
27	Fireplaces types (gas appliance) (vented or non-vented) or wood burning with Hearth (see chapter 10 and chapter 24 of FBCR)	- X		
28	Show stairs with dimensions (width, tread and riser and total run) details of guardrails, Handrails	- X		
29	Identify accessibility of bathroom (see FBCR SECTION 320)	- X		

All materials placed within opening or onto/into exterior walls, soffits or roofs shall have Florida product approval number and mfg. installation information submitted with the plans (see Florida product approval form)

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL		Items to Include- Each Box shall be Circled as Applicable		
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FBCR 403: Foundation Plans

		Select From Drop down		
30	Location of all load-bearing walls footings indicated as standard, monolithic, dimensions, size and type of reinforcing	- ✓		
31	All posts and/or column footing including size and reinforcing	- ✓		
32	Any special support required by soil analysis such as piling.	- X		
33	Assumed load-bearing value of soil _____ Pound Per Square Foot	-		
34	Location of horizontal and vertical steel, for foundation or walls (include # size and type) For structures with foundation which establish new electrical utility companies service connection a Concrete Encased Electrode will be required within the foundation to serve as an grounding electrode system. Per the National Electrical Code article 250.52.3	- ✓		

FBCR 506: CONCRETE SLAB ON GRADE

35	Show Vapor retarder (6mil. Polyethylene with joints taped 6 inches and sealed)	- ✓		
36	Show control joints, synthetic fiber reinforcement or welded wire fabric reinforcement and Supports	- ✓		

FBCR 318: PROTECTION AGAINST TERMITES

37	Indicate on the foundation plan if soil treatment is used for subterranean termite prevention or Submit other approved termite protection methods. Protection shall be provided by registered termiticides	- ✓		
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FBCR 606: Masonry Walls and Stem walls (load bearing & shear Walls)

38	Show all materials making up walls, wall height, and Block size, mortar type	- ✓		
39	Show all Lintel sizes, type, spans and tie-beam sizes and spacing of reinforcement	- X		

Metal frame shear wall and roof systems shall be designed, signed and sealed by Florida Prof. Engineer or Architect

Floor Framing System: First and/or second story

40	Floor truss package shall including layout and details, signed and sealed by Florida Registered Professional Engineer	- ✓		
41	Show conventional floor joist type, size, span, spacing and attachment to load bearing walls, stem walls and/or piers	- X		
42	Girder type, size and spacing to load bearing walls, stem wall and/or piers	- X		
43	Attachment of joist to girder	- X		
44	Wind load requirements where applicable	- ✓		
45	Show required under-floor crawl space	- X		
46	Show required amount of ventilation opening for under-floor spaces	- X		
47	Show required covering of ventilation opening	- X		
48	Show the required access opening to access to under-floor spaces	- X		
49	Show the sub-floor structural panel sheathing type, thickness and fastener schedule on the edges & intermediate of the areas structural panel sheathing	- X		
50	Show Draftstopping, Fire caulking and Fire blocking	- X		
51	Show fireproofing requirements for garages attached to living spaces, per FBCR section 302.6	- X		
52	Provide live and dead load rating of floor framing systems (psf)	- X		

FBCR CHAPTER 6 WOOD WALL FRAMING CONSTRUCTION

GENERAL REQUIREMENTS: APPLICANT - PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL		Items to Include- Each Box shall be Circled as Applicable		
		Select from Drop down		
53	Stud type, grade, size, wall height and oc spacing for all load bearing or shear walls	- ✓		
54	Fastener schedule for structural members per table FBC-R602.3.2 are to be shown	- ✓		
55	Show Wood structural panel's sheathing attachment to studs, joist, trusses, rafters and structural members, showing fastener schedule attachment on the edges & intermediate of the areas structural panel sheathing	- ✓		
56	Show all required connectors with a max uplift rating and required number of connectors and oc spacing for continuous connection of structural walls to foundation and roof trusses or rafter systems	- ✓		
57	Show sizes, type, span lengths and required number of support jack studs, king studs for shear wall opening and girder or header per FBC-R602.7.	- ✓		
58	Indicate where pressure treated wood will be placed	- ✓		
59	Show all wall structural panel sheathing, grade, thickness and show fastener schedule for structural panel sheathing edges & intermediate areas	- ✓		
60	A detail showing gable truss bracing, wall balloon framing details or/ and wall hinge bracing detail	- ✓		

FBCR :ROOF SYSTEMS:

61	Truss design drawing shall meet section FBC-R 802.10. 1 Wood trusses	- ✓		
62	Include a layout and truss details, signed and sealed by Florida Professional Engineer	- ✓		
63	Show types of connector's assemblies' and resistance uplift rating for all trusses and rafters	- ✓		
64	Show gable ends with rake beams showing reinforcement or gable truss and wall bracing details	- ✓		
65	Provide dead load rating of trusses	- ✓		

FBCR 802:Conventional Roof Framing Layout

66	Rafter and ridge beams sizes, span, species and spacing	- X		
67	Connectors to wall assemblies' include assemblies' resistance to uplift rating	- X		
68	Valley framing and support details	- X		
69	Provide dead load rating of rafter system	- X		

FBCR 803 ROOF SHEATHING

70	Include all materials which will make up the roof decking, identification of structural panel sheathing, grade, thickness	- ✓		
71	Show fastener Size and schedule for structural panel sheathing on the edges & intermediate areas	- ✓		

ROOF ASSEMBLIES FRC Chapter 9

72	Include all materials which will make up the roof assemblies covering	-		
73	Submit Florida Product Approval numbers for each component of the roof assemblies covering	-		

FBCR Chapter 11 Energy Efficiency Code for Residential Building

Residential construction shall comply with this code by using the following compliance methods in the FBCR Chapter 11 Residential buildings compliance methods. **Two of the required forms are to be submitted, N1100.1.1.1 As an alternative to the computerized Compliance Method A, the Alternate Residential Point System Method hand calculation, Alternate Form 600A, may be used. All requirements specific to this calculation are located in Sub appendix C to Appendix G. Buildings complying by this alternative shall meet all mandatory requirements of this chapter. Computerized versions of the Alternate Residential Point System Method shall not be acceptable for code compliance.**

GENERAL REQUIREMENTS: APPLICANT - PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL		Items to Include- Each Box shall be Circled as Applicable		
		Select from Drop Down		
74	Show the insulation R value for the following areas of the structure	-		
75	Attic space	-	✓ R-38	
76	Exterior wall cavity	-	✓ R-19	
77	Crawl space	-	X	

HVAC information

78	Submit two copies of a Manual J sizing equipment or equivalent computation study	-	✓	
79	Exhaust fans shown in bathrooms Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous required	-	✓	
80	Show clothes dryer route and total run of exhaust duct	-	✓	

Plumbing Fixture layout shown

81	All fixtures waste water lines shall be shown on the foundation plan	-	✓	
82	Show the location of water heater	-	✓	

Private Potable Water

83	Pump motor horse power	-	x	
84	Reservoir pressure tank gallon capacity	-	E	
85	Rating of cycle stop valve if used	-	X	

Electrical layout shown including

86	Show Switches, receptacles outlets, lighting fixtures and Ceiling fans	-	✓	
87	Show all 120-volt, single phase, 15- and 20-ampere branch circuits outlets required to be protected by Ground-Fault Circuit Interrupter (GFCI) Article 210.8 A	-	✓	
88	Show the location of smoke detectors & Carbon monoxide detectors	-	✓	
89	Show service panel, sub-panel, location(s) and total ampere ratings	-	✓	
90	On the electrical plans identify the electrical service overcurrent protection device for the main electrical service. This device shall be installed on the exterior of structures to serve as a disconnecting means for the utility company electrical service. Conductors used from the exterior disconnecting means to a panel or sub panel shall have four-wire conductors, of which one conductor shall be used as an equipment ground. Indicate if the utility company service entrance cable will be of the overhead or underground type. For structures with foundation which establish new electrical utility companies service connection a Concrete Encased Electrode will be required within the foundation to serve as an Grounding electrode system. Per the National Electrical Code article 250.52.3	-	✓	
91	Appliances and HVAC equipment and disconnects	-	✓	
92	Show all 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed Combination arc-fault circuit interrupter, Protection device.	-	✓	

Notice Of Commencement:

A notice of commencement form **RECORDED** in the Columbia County Clerk Office is required to be filed with the Building Department **BEFORE ANY INSPECTIONS** can be performed.

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Circled as Applicable
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****ITEMS 95, 96, & 98 Are Required After APPROVAL from the ZONING DEPT.*****Select from Drop down*

93	Building Permit Application A current Building Permit Application is to be completed, by following the Checklist all supporting documents must be submitted. There is a \$15.00 application fee. The completed application with attached documents and application fee can be mailed.	✓		
94	Parcel Number The parcel number (Tax ID number) from the Property Appraisers Office (386) 758-1083 is required. A copy of property deed is also required. www.columbiacountyfla.com	✓		
95	Environmental Health Permit or Sewer Tap Approval A copy of a approved Columbia County Environmental Health (386) 758-1058	-		
96	City of Lake City A City Water and/or Sewer letter. Call 386-752-2031	-NA		
97	Toilet facilities shall be provided for all construction sites	-		
98	Town of Fort White (386) 497-2321 If the parcel in the application for building permit is within the Corporate city limits of Fort White, an approval land use development letter issued by the Town of Fort is required to be submitted with the application for a building permit.	-		
99	Flood Information: All projects within the Floodway of the Suwannee or Santa Fe Rivers shall require permitting through the Suwannee River Water Management District, before submitting a application to this office. Any project located within a flood zone where the base flood elevation (100 year flood) has been established shall meet the requirements of Section 8.5.2 of the Columbia County Land Development Regulations. Any project located within a flood zone where the base flood elevation has not been established (Zone A) shall meet the requirements of Section 8.5.3 of the Columbia County Land Development Regulations (Municode.com)	-		
100	CERTIFIED FINISHED FLOOR ELEVATIONS will be required on any project where the approved FIRM Flood Maps show the property is in a AE, Floodway, and AH flood zones. Additionally One Foot Rise letters are required for AE and AH zones. In the Floodway Flood zones a Zero Rise letter is required.	-		
101	A Flood development permit is also required for AE, Floodway & AH. Development permit cost is \$50.00	-		
102	Driveway Connection: If the property does not have an existing access to a public road, then an application for a culvert permit (\$25.00) must be made. County Public Works Dept. determines the size and length of every culvert before instillation and completes a final inspection before permanent power is granted. If the applicant feels that a culvert is not needed, they may apply for a culvert waiver (\$50.00) Separate Check when issued. If the project is to be located on an F.D.O.T. maintained road, then an F.D.O.T. access permit is required.	-		
103	911 Address: An application for a 911 address must be applied for and received through the Columbia County Emergency Management Office of 911 Addressing Department (386) 758-1125.	✓		

Ordinance Sec. 90-75. - Construction debris. (e) It shall be unlawful for any person to dispose of or discard solid waste, including construction or demolition debris at any place within the county other than on an authorized disposal site or at the county's solid waste facilities. The temporary storage, not to exceed seven days of solid waste (excluding construction and demolition debris) on the premises where generated or vegetative trash pending disposition as authorized by law or ordinance, shall not be deemed a violation of this section. The temporary storage of construction and demolition debris on the premises where generated or vegetative trash pending disposition as authorized by law or ordinance shall not be deemed in violation of this section, provided, however, such construction and demolition debris must be disposed of in accordance with this article prior to the county's issuance of a certificate of occupancy for the premises. The burning of lumber from a construction or demolition project or vegetative trash when done so with legal and proper permits from the authorized agencies and in accordance with such agencies' rules and regulations, shall not be deemed a violation of this section. No person shall bury, throw, place, or deposit, or cause to be buried, thrown, placed, or deposited, any solid waste, special waste, or debris of any kind into or on any of the public streets, road right-of-way, highways, bridges, alleys, lanes, thoroughfares, waters, canals, or vacant lots or lands within the county. No person shall bury any vegetative trash on any of the public streets, road right-of-way, highways, bridges, lanes, thoroughfares, waters, canals, or lots less than ten acres in size within the county.

Disclosure Statement for Owner Builders:

If you as the Applicant will be acting as your own contractor or owner/builder under section 489.103(7) Florida Statutes, you must submit the required notarized Owner Builder Disclosure Statement form.

**This form can be printed from the Columbia County Website on the Building and Zoning page under Documents. Web address is - <http://www.columbiacountyfla.com/BuildingandZoning.asp>

Section 105 of the Florida Building Code defines the:

Time limitation of application.

An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.

Single-family residential dwelling.

Section 105.3.4 A building permit for a single-family residential dwelling must be issued within 30 working days of application therefor unless unusual circumstances require a longer time for processing the application or unless the permit application fails to satisfy the Florida Building Code or the enforcing agency's laws or ordinances.

Permit intent.

Section 105.4.1: A permit issued shall be constructed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within six months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of six months after the time the work is commenced.

If work has commenced.

Section 105.4.1.1: If work has commenced and the permit is revoked, becomes null and void, or expires because of lack of progress or abandonment, a new permit covering the proposed construction shall be obtained before proceeding with the work.

New Permit.

Section 105.4.1.2: If a new permit is not obtained within 180 days from the date the initial permit became null and void, the building official is authorized to require that any work which has been commenced or completed be removed from the building site. Alternately, a new permit may be issued on application, providing the work in place and required to complete the structure meets all applicable regulations in effect at the time the initial permit became null and void and any regulations which may have become effective between the date of expiration and the date of issuance of the new permit.

Work Shall Be:

Section 105.4.1.3: Work shall be considered to be in active progress when the permit has received an approved inspection within 180 days. This provision shall not be applicable in case of civil commotion or strike or when the building work is halted due directly to judicial injunction, order or similar process.

The Fee:

Section 105.4.1.4: The fee for renewal reissuance and extension of a permit shall be set forth by the administrative authority.

Notification:

When the application is approved for permitting the applicant will be notified by phone as to the status by the Columbia County Building & Zoning Department.

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G. OTHER			
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E. OTHER			
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NOTES: _____



Lumber design values are in accordance with ANSI/TPI 1 section 6.3
These truss designs rely on lumber values established by others.

RE: 2092343 - GK CONST. - LANG RES.

MiTek USA, Inc.
6904 Parke East Blvd.
Tampa, FL 33610-4115

Site Information:

Customer Info: GK Const. Project Name: Lang Res. Model: Custom
Lot/Block: N/A Subdivision: N/A
Address: 838 SW Cannon Creek Drive, N/A
City: Columbia Cty State: FL

Name Address and License # of Structural Engineer of Record, If there is one, for the building.

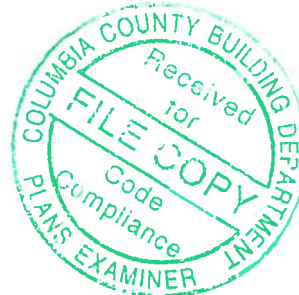
Name: License #:
Address:
City: State:

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

Design Code: FBC2017/TPI2014 Design Program: MiTek 20/20 8.2
Wind Code: ASCE 7-10 Wind Speed: 130 mph
Roof Load: 37.0 psf Floor Load: N/A psf

This package includes 9 individual, Truss Design Drawings and 0 Additional Drawings.
With my seal affixed to this sheet, I hereby certify that I am the Truss Design Engineer and this index sheet conforms to 61G15-31.003, section 5 of the Florida Board of Professional Engineers Rules.

No.	Seal#	Truss Name	Date
1	T18166407	PB01	9/20/19
2	T18166408	PB01G	9/20/19
3	T18166409	T01	9/20/19
4	T18166410	T01G	9/20/19
5	T18166411	T02	9/20/19
6	T18166412	T03	9/20/19
7	T18166413	T03G	9/20/19
8	T18166414	T04	9/20/19
9	T18166415	T04G	9/20/19

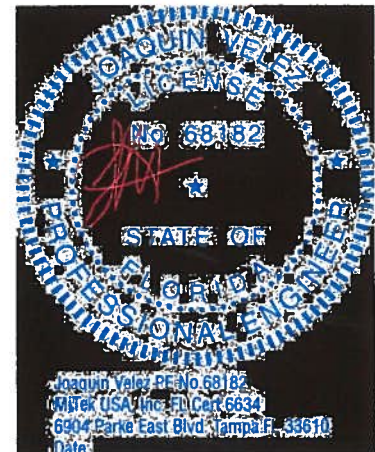


The truss drawing(s) referenced above have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Builders FirstSource-Jacksonville.

Truss Design Engineer's Name: Velez, Joaquin

My license renewal date for the state of Florida is February 28, 2021.

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.



September 20, 2019

Velez, Joaquin

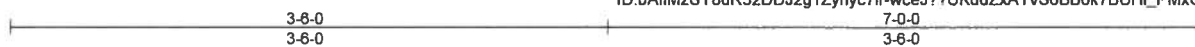
1 of 1

Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166407
2092343	PB01	PIGGYBACK	26	1		

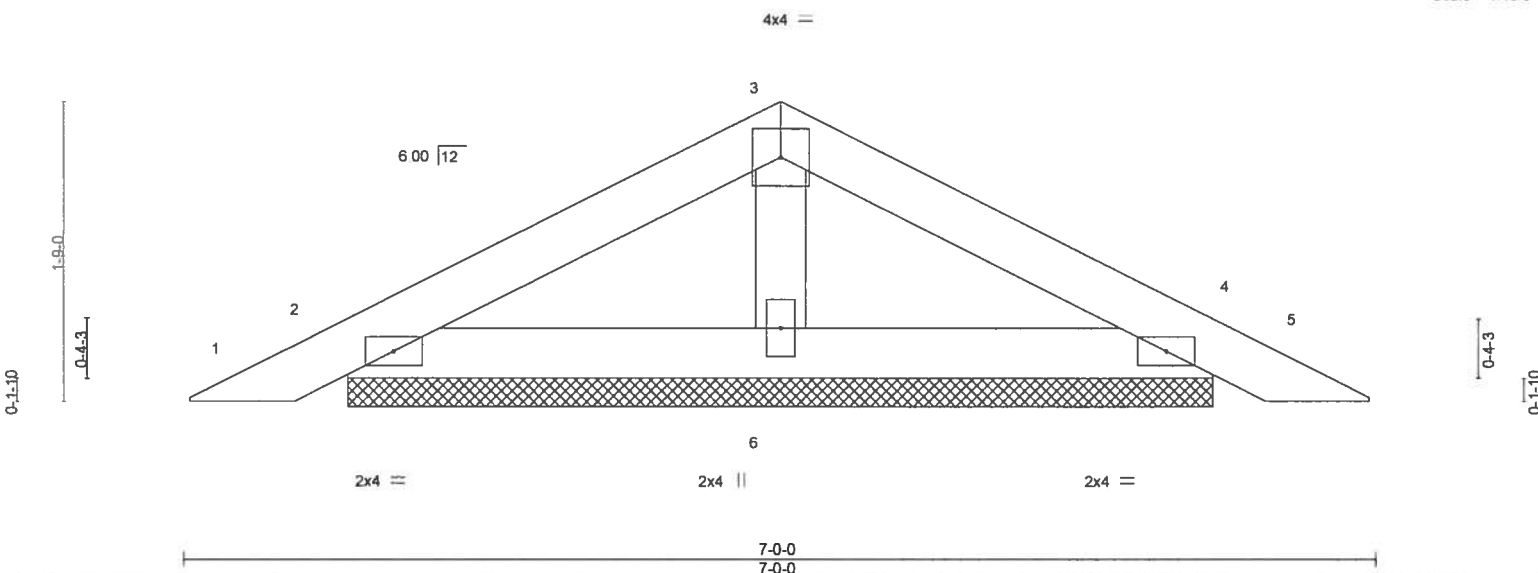
Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:43 2019 Page 1

ID: bAfIMzSY8dR32DDJ2g1Zyhyc7lr-wceJ??UKddZxAYvS6BBok7BUHi_PMG?D081HoybkW6



Scale = 1:13.5



LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.09	Vert(LL)	0.00	5	n/r	120	MT20
TCDL 7.0	Lumber DOL	1.25	BC 0.06	Vert(CT)	0.00	5	n/r	120	244/190
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.03	Horz(CT)	0.00	4	n/a	n/a	
BCDL 10.0	Code FBC2017/TPI2014		Matrix-P						
								Weight: 21 lb	FT = 20%

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

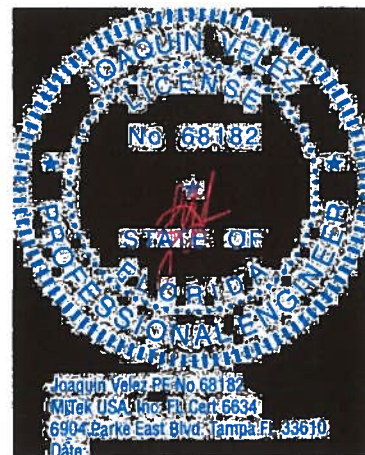
BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 2=131/5-0-14, 4=131/5-0-14, 6=179/5-0-14
Max Horz 2=26(LC 13)
Max Uplift 2=53(LC 12), 4=58(LC 13), 6=23(LC 12)

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 (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- 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.
- All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 4, 6.
- See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.



September 20, 2019

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.

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6904 Parke East Blvd.
Tampa, FL 33610

Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166408
2092343	PB01G	GABLE	2	1		

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:43 2019 Page 1
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Scale = 1:11.1

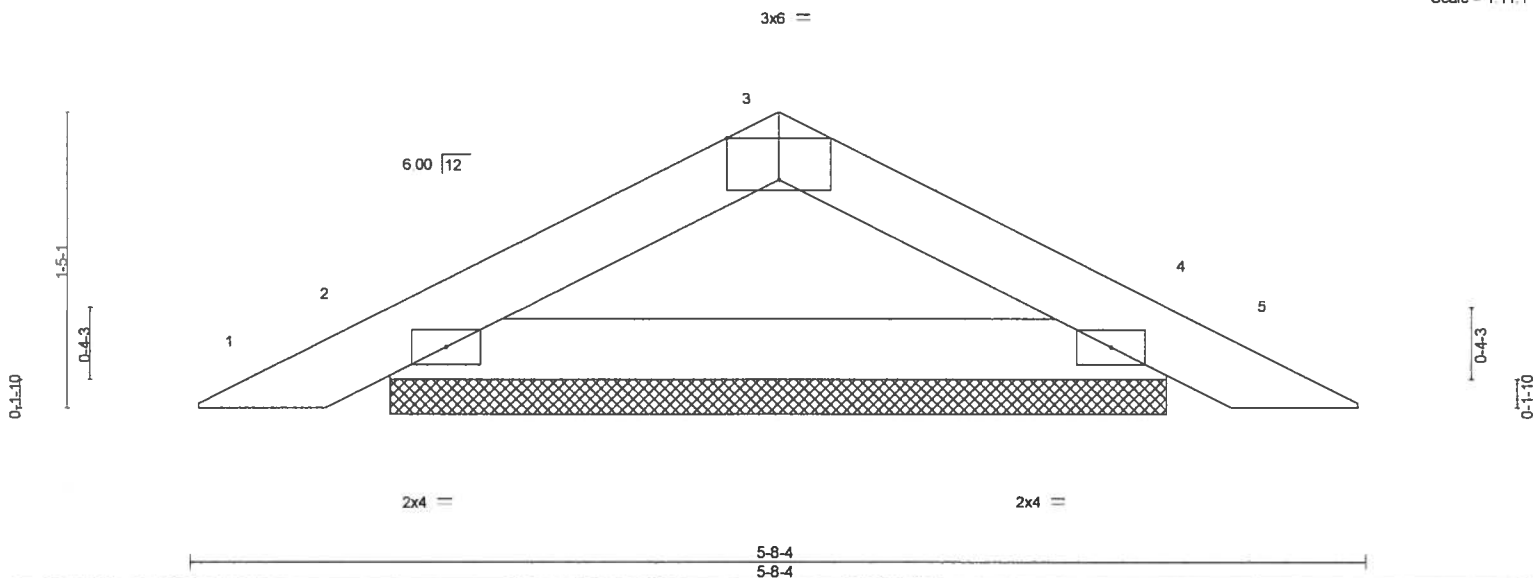


Plate Offsets (X,Y) [3:0-3-0,Edge]

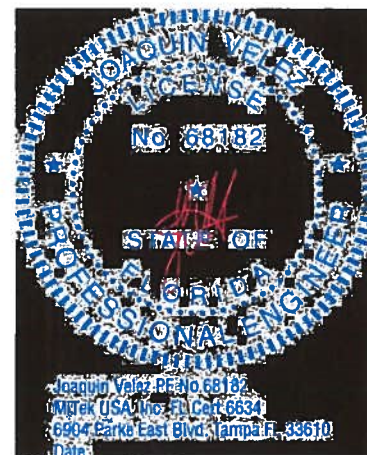
LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.05	Vert(LL)	0.00	4	n/r	120	MT20	244/190
TCDL 7.0	Lumber DOL	1.25	BC 0.17	Vert(CT)	0.00	5	n/r	120		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.00	Horz(CT)	0.00	4	n/a	n/a		
BCDL 10.0	Code FBC2017/TPI2014		Matrix-P						Weight: 15 lb	FT = 20%

LUMBER-	BRACING-
TOP CHORD 2x4 SP No.2	TOP CHORD Structural wood sheathing directly applied or 5-8-4 oc purlins.
BOT CHORD 2x4 SP No.2	BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS. (lb/size) 2=172/3-9-2, 4=172/3-9-2
Max Horz 2=-21(LC 13)
Max Uplift 2=-52(LC 12), 4=-52(LC 13)

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 (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf, h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch 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.
 - 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 - All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 4.
 - See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.



September 20, 2019

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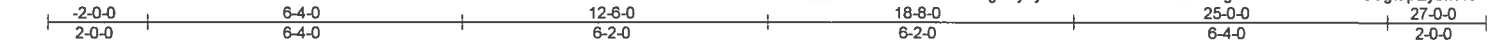


6904 Parke East Blvd.
Tampa, FL 36610

Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166409
2092343	T01	Common	11	1	Job Reference (optional)	

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:44 2019 Page 1
ID bAfIMzSY8dR32DDJ2g1Zyhyc7lr-OoChCLVzOxiooiUfgui1GLkXX69x5Jo8SgtapEybkW5



Scale = 1:46.5

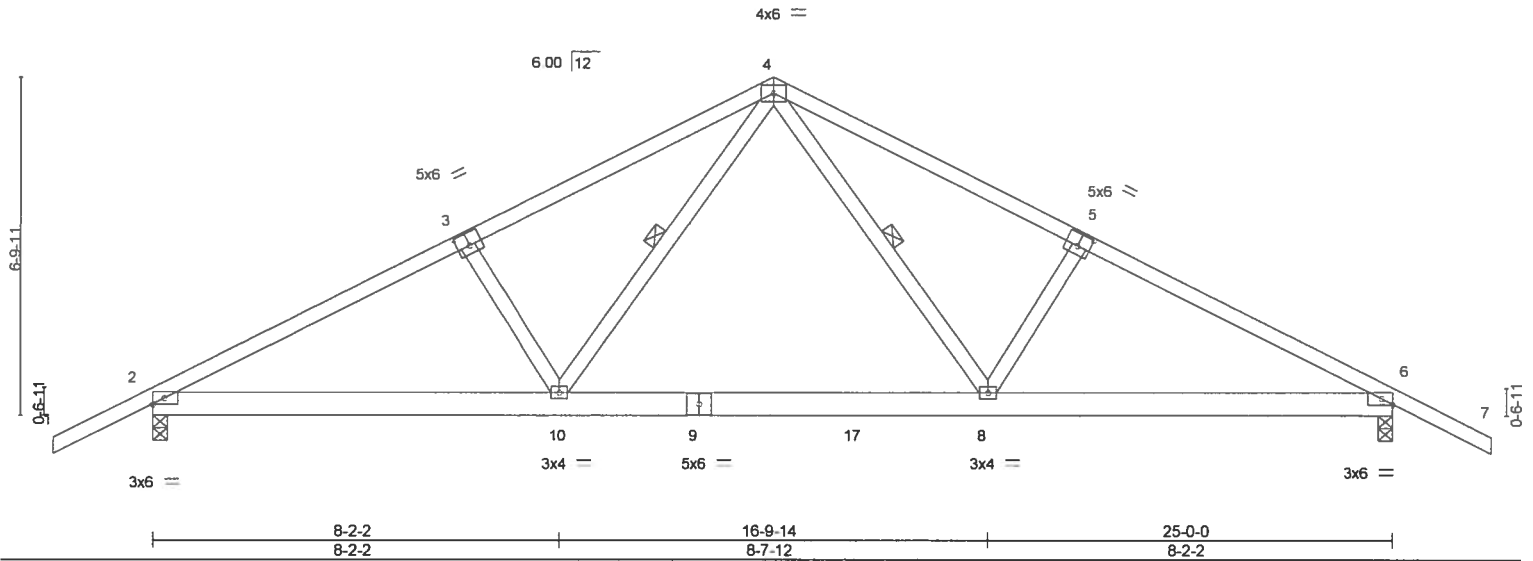


Plate Offsets (X,Y) [3:0-3-0,0-3-0], [5:0-3-0,0-3-0]

LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.63	Vert(LL)	0.34	8-10	>874	240	MT20	244/190
TCDL 7.0	Lumber DOL	1.25	BC 0.81	Vert(CT)	-0.34	8-10	>888	180		
BCLL 0.0 *	Rep Stress Incr	NO	WB 0.33	Horz(CT)	0.04	6	n/a	n/a		
BCDL 10.0	Code FBC2017/TPI2014		Matrix-MS						Weight: 139 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x6 SP No.2
WEBS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 3-4-14 oc purlins.
BOT CHORD Rigid ceiling directly applied or 5-4-11 oc bracing.
WEBS 1 Row at midpt 4-8, 4-10

REACTIONS. (lb/size) 2=1292/0-3-8, 6=1292/0-3-8
Max Horz 2=-121(LC 17)
Max Uplift 2=-413(LC 9), 6=-413(LC 8)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-2157/2010, 3-4=-2001/2021, 4-5=-2001/2021, 5-6=-2157/2010
BOT CHORD 2-10=-1665/1862, 8-10=-1016/1249, 6-8=-1677/1862
WEBS 4-8=-967/859, 5-8=-302/246, 4-10=-967/859, 3-10=-302/246

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch left and right exposed; 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
 - All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=413, 6=413.
 - 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

- Dead + Roof Live (balanced): Lumber Increase=1.25, Plate Increase=1.25
Uniform Loads (plf)
Vert: 1-4=-54, 4-7=-54, 10-11=-20, 8-10=-80(F=-60), 8-14=-20



September 20, 2019

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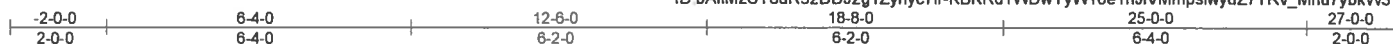
6904 Parke East Blvd.
Tampa, FL 33610

Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166410
2092343	T01G	GABLE	1	1		

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:46 2019 Page 1

ID bAfmMzSY8dR32DDJ2g1Zyhyc7lr-KBKRd1WDwYyW10e1nJVMmpslwydZ7YRv_Mhu7ybkW3



Scale: 1/4"=1'

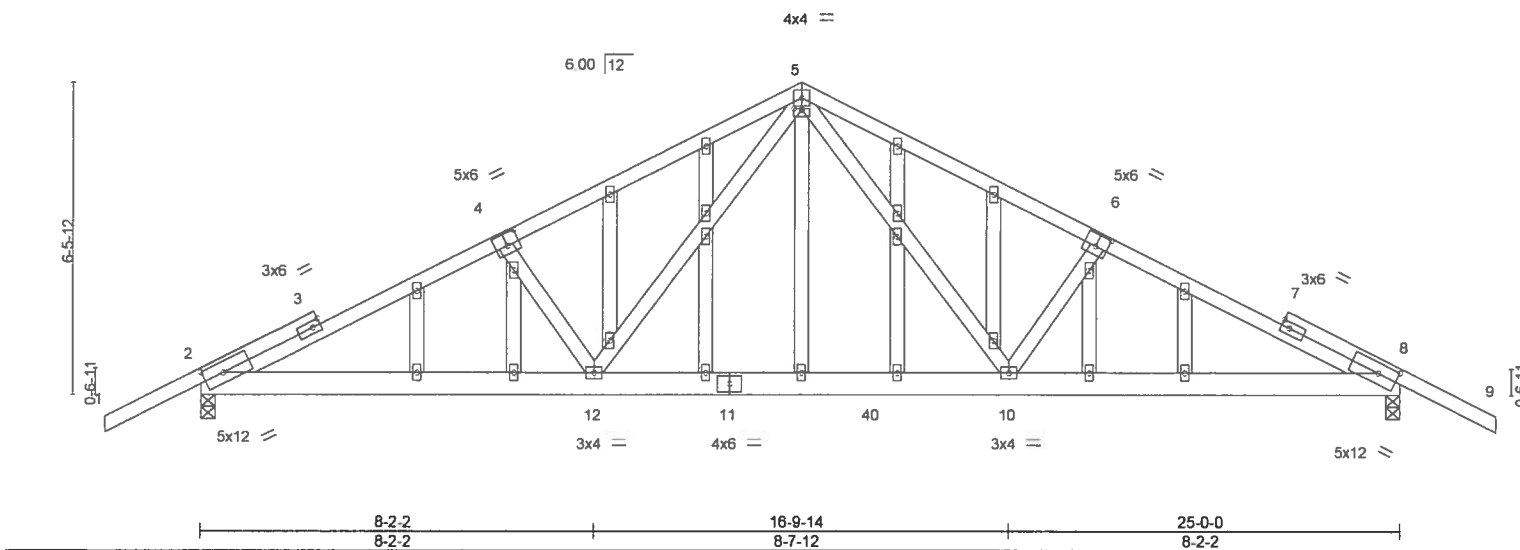


Plate Offsets (X,Y)--		[2:0-4-14,0-2-8], [4:0-3-0,0-3-0], [5:0-2-0,0-0-4], [6:0-3-0,0-3-0], [8:0-4-14,0-2-8]	
LOADING (psf)	SPACING-	2-0-0	CSL
TCLL 20.0	Plate Grip DOL	1.25	TC 0.65
TCDL 7.0	Lumber DOL	1.25	BC 0.35
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.76
BCDL 10.0	Code FBC2017/TPI2014		Matrix-MS
			DEFL.
			in (loc) l/defl L/d
			Vert(LL) 0.15 10-12 >999 240
			Vert(CT) -0.20 10-12 >999 180
			Horz(CT) 0.03 8 n/a n/a
			PLATES
			MT20
			GRIP
			244/190
			Weight: 188 lb FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x6 SP No.2
WEBS 2x4 SP No.3
OTHERS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 3-9-5 oc purins.
BOT CHORD Rigid ceiling directly applied or 6-4-9 oc bracing.

REACTIONS. (lb/size) 2=1030/0-3-8, 8=1030/0-3-8
Max Horz 2=116(LC 13)
Max Uplift 2=315(LC 9), 8=315(LC 8)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-4=1595/1515, 4-5=1470/1509, 5-6=1470/1509, 6-8=1595/1515
BOT CHORD 2-12=1256/1427, 10-12=695/906, 8-10=1272/1427
WEBS 4-12=355/306, 5-12=714/582, 5-10=714/582, 6-10=355/306

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch 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.
 - 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
 - All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=315, 8=315.



September 20, 2019

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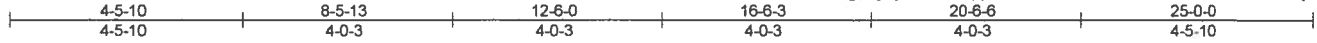
6904 Parke East Blvd.
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Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166411
2092343	T02	Common Girder	1	1	Job Reference (optional)	

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:47 2019 Page 1

ID: bAfMzSY8dR32DDJ2g1Zyhyc7lr-oNuqqNXrsh4NfADELOGkuzM4ZJKelZla8e6FQZybkW2



Scale = 1/4" = 1'

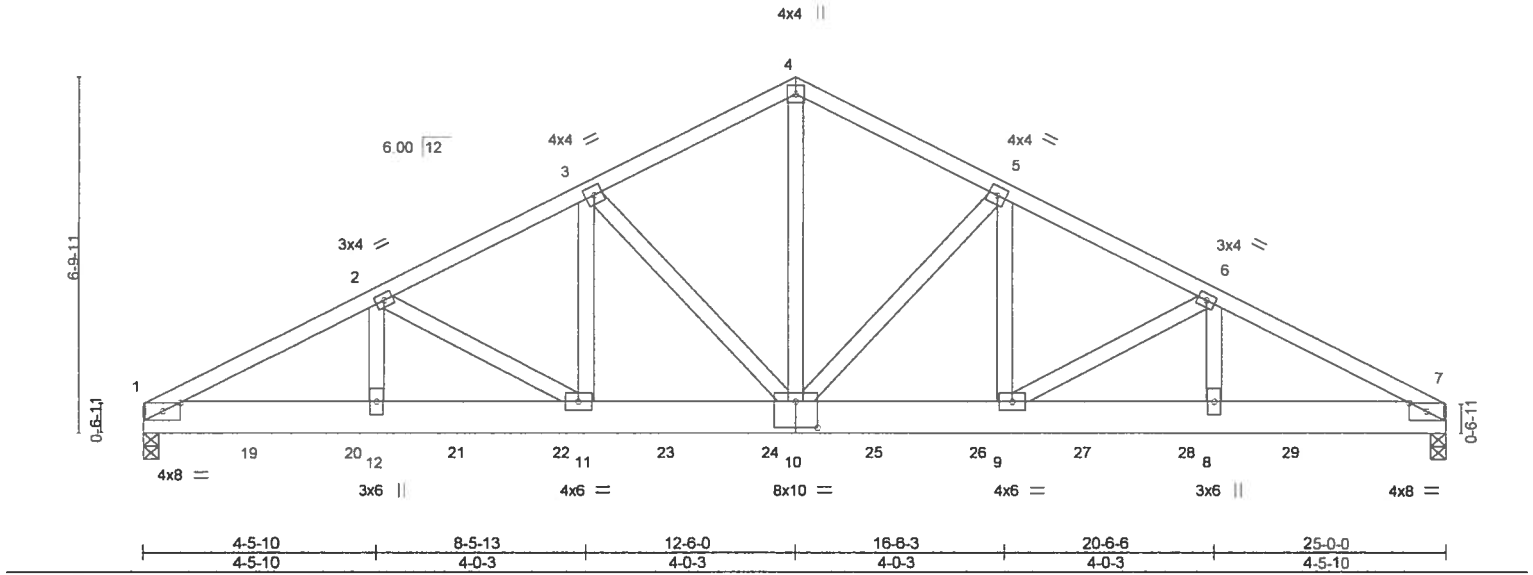


Plate Offsets (X,Y) - [1:0-4-0,0-1-15], [7:0-4-0,0-1-15], [10:0-5-0,0-6-0]

LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.39	Vert(LL)	-0.15	9-10	>999	240	MT20	244/190
TCDL 7.0	Lumber DOL	1.25	BC 0.24	Vert(CT)	-0.22	9-10	>999	180		
BCLL 0.0 *	Rep Stress Incr	NO	WB 0.79	Horz(CT)	0.04	7	n/a	n/a		
BCDL 10.0	Code FBC2017/TPI2014		Matrix-MS						Weight: 174 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x8 SP 2400F 2.0E
WEBS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 2-9-5 oc purlins.
BOT CHORD Rigid ceiling directly applied or 9-2-5 oc bracing.

REACTIONS. (lb/size) 1=2172/0-3-8, 7=2294/0-3-8
Max Horz 1=104(LC 8)
Max Uplift 1=985(LC 8), 7=1057(LC 9)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 1-2=3967/1806, 2-3=3364/1539, 3-4=2609/1225, 4-5=2609/1225, 5-6=3366/1540, 6-7=3975/1812
BOT CHORD 1-12=1663/3507, 11-12=1663/3507, 10-11=1351/2968, 9-10=1263/2970, 8-9=1564/3514, 7-8=1564/3514
WEBS 4-10=998/2078, 5-10=1012/554, 5-9=441/854, 6-9=646/366, 6-8=225/403, 3-10=1011/553, 3-11=439/851, 2-11=638/361, 2-12=222/398

NOTES-

- Unbalanced roof live loads have been considered for this design.
- Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone; porch left and right exposed; 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
- All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 1=985, 7=1057.
- Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 218 lb down and 145 lb up at 2-0-12, 218 lb down and 145 lb up at 4-0-12, 218 lb down and 145 lb up at 6-0-12, 218 lb down and 145 lb up at 8-0-12, 218 lb down and 145 lb up at 10-0-12, 218 lb down and 145 lb up at 12-0-12, 218 lb down and 145 lb up at 14-0-12, 218 lb down and 145 lb up at 16-0-12, 218 lb down and 145 lb up at 18-0-12, 218 lb down and 145 lb up at 20-0-12, and 218 lb down and 145 lb up at 22-0-12, and 219 lb down and 144 lb up at 24-0-12 on bottom chord. The design/selection of such connection device(s) is the responsibility of others.
- 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

- Dead + Roof Live (balanced): Lumber Increase=1.25, Plate Increase=1.25
Uniform Loads (plf)
Vert: 1-4=-54, 4-7=-54, 13-16=-20



September 20, 2019

Continued on page 2

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6904 Parke East Blvd.
Tampa, FL 36610

Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166411
2092343	T02	Common Girder	1	1	Job Reference (optional)	

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:48 2019 Page 2
ID: bAfIMzSY8dR32DDJ2g1Zyhyc7lr-GaSC2jYTS9CEGJoQvknzRBvFJjfr10YkNlroy?ybkW1

LOAD CASE(S) Standard

Concentrated Loads (lb)

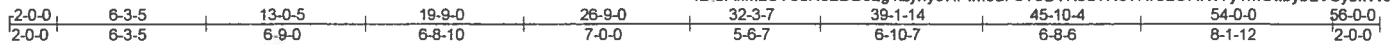
Vert: 18=-219(B) 19=-218(B) 20=-218(B) 21=-218(B) 22=-218(B) 23=-218(B) 24=-218(B) 25=-218(B) 26=-218(B) 27=-218(B) 28=-218(B) 29=-218(B)

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.

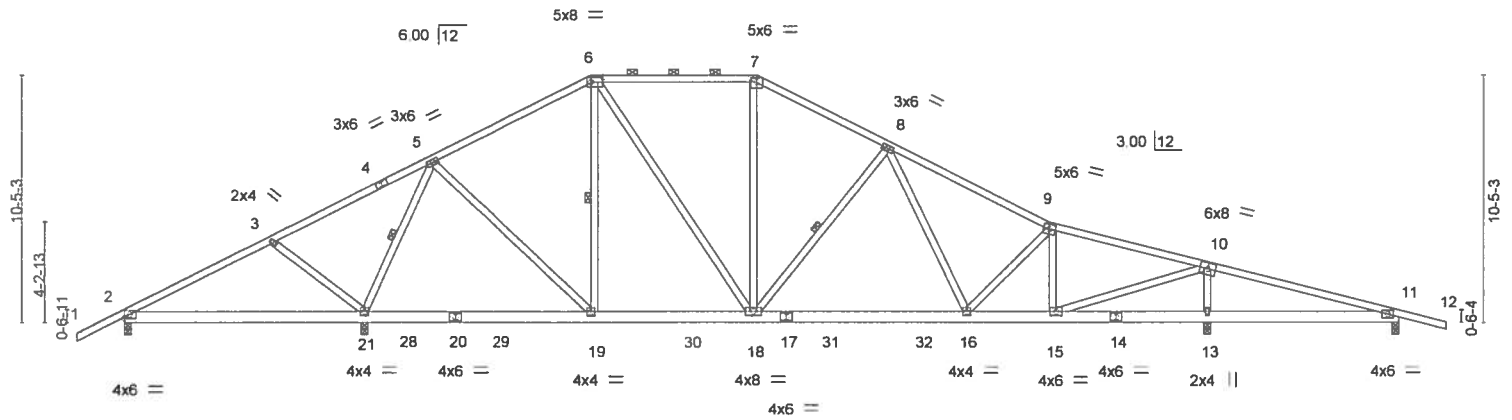
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Tampa, FL 36610



Scale = 1.97.6



		10-1-12		19-9-0		26-9-0		35-7-13		39-1-14		45-10-4		54-0-0	
		10-1-12		9-7-4		7-0-0		8-10-13		3-6-1		6-8-6		8-1-12	
Plate Offsets (X, Y)-- [6:0-6-0,0-2-8], [7:0-3-0,0-2-0]															
LOADING (psf)		SPACING- 2-0-0		CSI.		DEFL.		in (loc)		l/defl		L/d		PLATES GRIP	
TCLL	20.0	Plate Grip DOL	1.25	TC	0.78	Vert(LL)	-0.12	16-18	>999	240				MT20	244/190
TCDL	7.0	Lumber DOL	1.25	BC	0.43	Vert(CT)	-0.22	16-18	>999	180					
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.72	Horz(CT)	0.02	13	n/a	n/a					
BCDL	10.0	Code FBC2017/TPI2014		Matrix-MS										Weight: 346 lb	FT = 20%

LUMBER-		BRACING-	
TOP CHORD	2x4 SP No.2	TOP CHORD	Structural wood sheathing directly applied or 3-5-8 oc purlins, except 2-0-0 oc purlins (3-11-2 max.): 6-7.
BOT CHORD	2x6 SP No.2	BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.
WEBS	2x4 SP No.3	WEBS	1 Row at midpt 5-21, 6-19, 8-18

REACTIONS. All bearings 0-3-8.

(lb) - Max Horz 2=190(LC 16)

Max Uplift All uplift 100 lb or less at joint(s) except 2=144(LC 9), 21=475(LC 12), 13=478(LC 13), 11=252(LC 9)

Max Grav All reactions 250 lb or less at joint(s) except 2=345(LC 23), 21=1958(LC 2), 13=1728(LC 1), 11=283(LC 24)

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

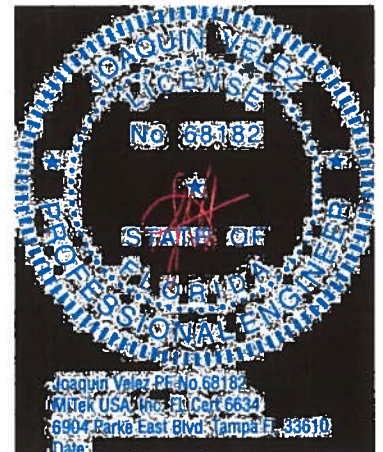
TOP CHORD
2-3=77/318, 3-5=128/549, 5-6=951/489, 6-7=1031/589, 7-8=1212/612,
8-9=1690/718, 9-10=1582/632, 10-11=63/386

BOT CHORD
2-21=261/223, 19-21=32/330, 18-19=40/805, 16-18=350/1326, 15-16=466/1508,
13-15=336/125, 11-13=300/113

WEBS
3-21=359/311, 5-21=1596/591, 5-19=97/781, 6-19=360/154, 6-18=180/519,
7-18=87/294, 8-18=525/340, 8-16=78/355, 9-15=624/276, 10-15=594/1897,
10-13=1456/613

NOTES-

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., Gcpl=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- 3) Provide adequate drainage to prevent water ponding.
- 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, with BCDL = 10.0psf.
- 6) All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
- 7) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 144 lb uplift at joint 2, 475 lb uplift at joint 21, 478 lb uplift at joint 13 and 252 lb uplift at joint 11.
- 8) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.



September 20, 2019

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.

WARNING: Verify design parameters and field notes on this and included literature and ensure use in accordance with the design. Design valid for use only with MITEKO 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-69 and BCS1 Building Components**. **Safety Information:** available from Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.



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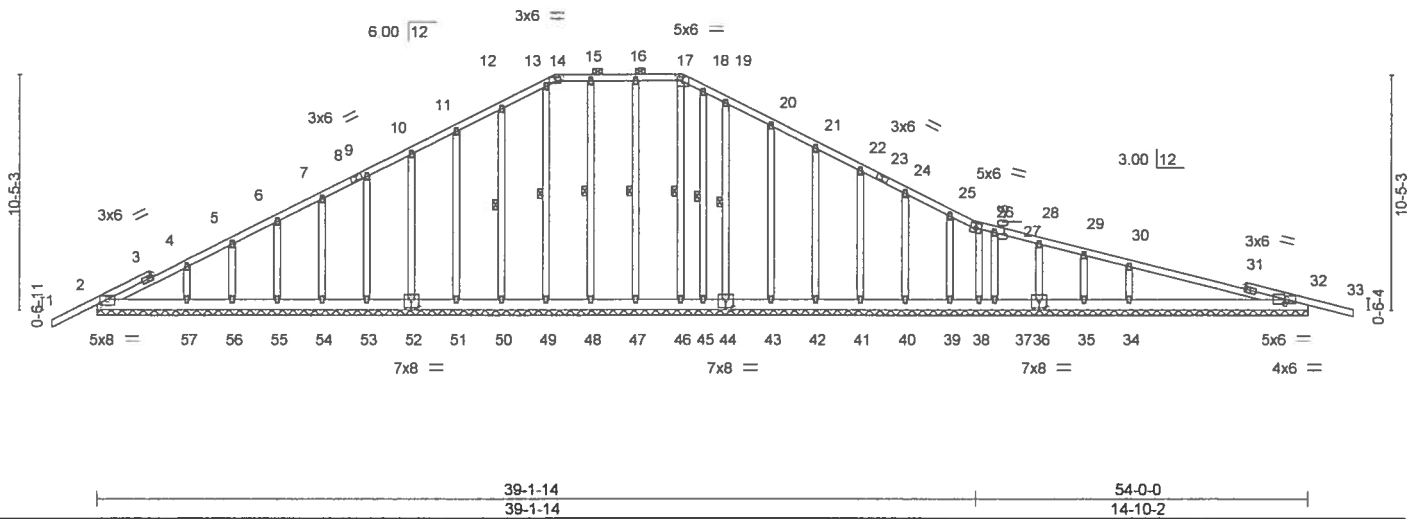


Plate Offsets (X,Y)–	[2:0-4-0,0-3-1], [14:0-3-0,0-2-0], [17:0-3-0,0-2-0], [32:0-1-4,0-2-2], [32:0-1-4,0-2-0], [36:0-4-0,0-4-8], [44:0-4-0,0-4-8], [52:0-4-0,0-4-8]
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LOADING (psf)	SPACING- 2-0-0	CSI.	DEFL. in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL 1.25	TC 0.53	Vert(LL) 0.03 33	n/r	120	MT20	244/190
TCDL 7.0	Lumber DOL 1.25	BC 0.23	Vert(CT) 0.06 33	n/r	120		
BCLL 0.0 *	Rep Stress Incr YES	WB 0.14	Horz(CT) 0.01 32	n/a	n/a		
BCDL 10.0	Code FBC2017/TP12014	Matrix-S				Weight: 431 lb	FT = 20%

LUMBER-		BRACING-	
TOP CHORD	2x4 SP No.2	TOP CHORD	Structural wood sheathing directly applied or 6-0-0 oc purlins, except 2-0-0 oc purlins (10-0-0 max.): 14-17.
BOT CHORD	2x6 SP No.2	BOT CHORD	Rigid ceiling directly applied or 6-0-0 oc bracing.
WEBS	2x4 SP No.3	WEBS	1 Row at midpt 18-45, 19-44, 12-50, 13-49, 15-48, 16-47, 17-46
OTHERS	2x4 SP No.3		

REACTIONS. All bearings 54-0-0.

(lb) - Max Horz 2=190(LC 16)

Max Uplift All uplift 100 lb or less at joint(s) 2, 45, 36, 37, 39, 40, 41, 42, 43, 44, 57, 56, 55, 54, 53, 52, 51, 50, 48, 47, 38 except 32=162(LC 9), 34=224(LC 13), 35=177(LC 24)

Max Grav All reactions 250 lb or less at joint(s) 45, 35, 36, 37, 39, 40, 41, 42, 43, 44, 57, 56, 55, 54, 53, 52, 51, 50, 49, 48, 47, 46, 38 except 32=353(LC 24), 2=263(LC 23), 34=668(LC 24)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 12-13=69/252, 17-18=71/262, 18-19=67/250
 WEBS 30-34=411/265

NOTES-

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDF=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch 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) Provide adequate drainage to prevent water ponding.
- 5) All plates are 2x4 MT20 unless otherwise indicated.
- 6) Gable requires continuous bottom chord bearing.
- 7) Gable studs spaced at 2'-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'-6" tall by 2'-0" wide will fit between the bottom chord and any other members.
- 10) All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
- 11) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 45, 36, 37, 39, 40, 41, 42, 43, 44, 57, 56, 55, 54, 53, 52, 51, 50, 48, 47, 38 except (jit=ib) 32=162, 34=224, 35=177.
- 12) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.



September 20, 2019

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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, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.



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Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	
2092343	T04	PIGGYBACK BASE	12	1		T18166414

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:53 2019 Page 1

ID: bAfmZSY8dR32DDJ2g1Zyhyc7lr-dXF55QccGiqWN5gNiHN88Ec0_kKziHpTWaZZdDybkVy

Job Reference (optional)

6-3-5	13-0-5	19-9-0	26-9-0	32-3-7	39-1-14	45-10-4	54-0-0	56-0-0	2-0-0
6-3-5	6-9-0	6-8-11	7-0-0	5-6-7	6-10-7	6-8-6	8-1-12		

Scale: 1/8"=1'

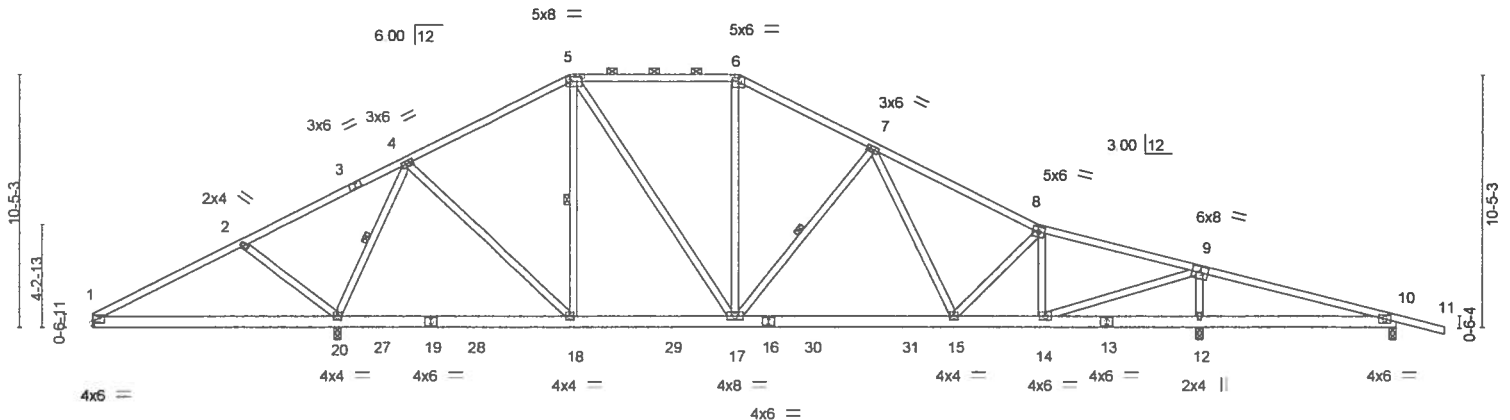


Plate Offsets (X,Y)									
	10-1-12	19-9-0	26-9-0	35-7-13	39-1-14	45-10-4	54-0-0		
	10-1-12	9-7-4	7-0-0	8-10-13	3-6-1	6-8-6	8-1-12		

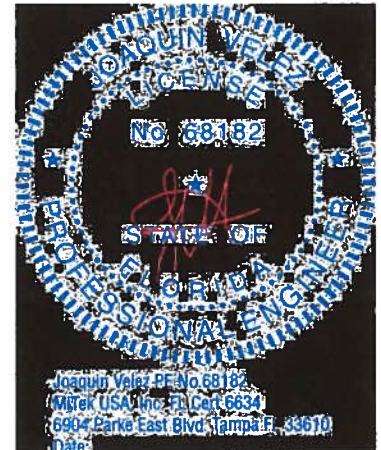
LOADING (psf)	SPACING	2-0-0	CSI	DEFL.	in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.78	Vert(LL)	0.13 20-23	>937	240	MT20	244/190
TCDL 7.0	Lumber DOL	1.25	BC 0.43	Vert(CT)	-0.22 15-17	>999	180		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.73	Horz(CT)	0.02 12	n/a	n/a		
BCDL 10.0	Code FBC2017/TPI2014		Matrix-MS					Weight: 343 lb	FT = 20%

LUMBER-	BRACING-
TOP CHORD 2x4 SP No.2	TOP CHORD Structural wood sheathing directly applied or 3-5-6 oc purlins, except
BOT CHORD 2x6 SP No.2	2-0-0 oc purlins (3-11-2 max.): 5-6.
WEBS 2x4 SP No.3	BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.
	WEBS 1 Row at midpt 4-20, 5-18, 7-17

REACTIONS. All bearings 0-3-8 except (l=length) 1=Mechanical.
 (lb) - Max Horz 1=183(LC 13)
 Max Uplift All uplift 100 lb or less at joint(s) except 1=125(LC 9), 20=473(LC 12), 12=479(LC 13), 10=252(LC 9)
 Max Grav All reactions 250 lb or less at joint(s) 1 except 20=1955(LC 2), 12=1731(LC 1), 10=283(LC 24)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 1-2=96/309, 2-4=112/527, 4-5=957/494, 5-6=1037/593, 6-7=1218/616,
 7-8=1695/722, 8-9=1587/635, 9-10=63/386
 BOT CHORD 1-20=253/216, 18-20=41/339, 17-18=51/809, 15-17=358/1333, 14-15=473/1513,
 12-14=336/126, 10-12=300/113
 WEBS 2-20=366/316, 4-20=1573/562, 4-18=86/771, 5-18=354/147, 5-17=177/518,
 6-17=89/295, 7-17=525/340, 7-15=78/355, 8-14=625/278, 9-14=598/1903,
 9-12=1459/615

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch left and right exposed; 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.
 - 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.
 - All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
 - Refer to girder(s) for truss to truss connections.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 125 lb uplift at joint 1, 473 lb uplift at joint 20, 479 lb uplift at joint 12 and 252 lb uplift at joint 10.
 - Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.



September 20, 2019

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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/TPI Quality Criteria, DSB-89 and BCSI Building Component Safety Information** available from Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.



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Job	Truss	Truss Type	Qty	Ply	GK CONST. - LANG RES.	T18166415
2092343	T04G	GABLE	1	1		

Builders FirstSource, Jacksonville, FL - 32244,

8 240 s Jul 14 2019 MiTek Industries, Inc. Fri Sep 20 12:33:56 2019 Page 1

ID bAfMzSY8dR32DDJ2g1Zyhyc7lr-16xDjSeUZdC5EYPyNPwrmmtEb4yOtnjvCXoDEYybKVV

20-4-14	26-1-2	39-1-14	54-0-0	56-0-0
20-4-14	5-8-4	13-0-12	14-10-2	2-0-0

Scale = 1:100.3

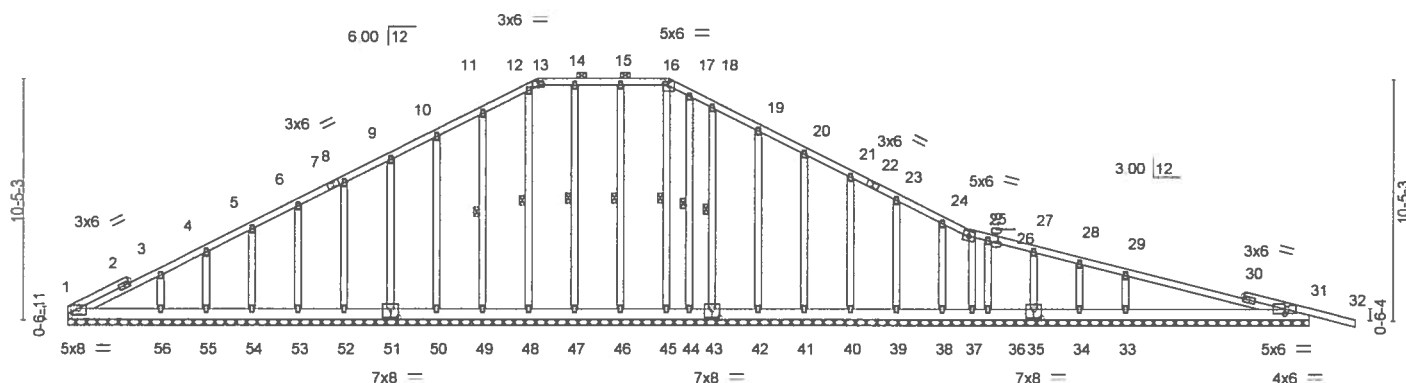


Plate Offsets (X,Y) =	[1:0-4-0-0-3-1], [13:0-3-0-0-2-0], [16:0-3-0-0-2-0], [31:0-1-4-0-2-2], [31:0-1-4-0-2-0], [35:0-4-0-0-4-8], [43:0-4-0-0-4-8], [51:0-4-0-0-4-8]
-----------------------	---

LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in	(loc)	l/def	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.25	TC 0.53	Vert(LL)	0.03	32	n/r	120	MT20	244/190
TCDL 7.0	Lumber DOL	1.25	BC 0.23	Vert(CT)	0.06	32	n/r	120		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.14	Horz(CT)	0.01	31	n/a	n/a		
BCDL 10.0	Code FBC2017/TPI2014		Matrix-S						Weight: 428 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2
BOT CHORD 2x6 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 2-0-0 oc purlins (10-0-0 max.): 13-16.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.
WEBS 1 Row at midpt 17-44, 18-43, 11-49, 12-48, 14-47, 15-46, 16-45

REACTIONS. All bearings 54-0-0.
(lb) - Max Horz 1=180(LC 17)
Max Uplift All uplift 100 lb or less at joint(s) 1, 44, 35, 36, 38, 39, 40, 41, 42, 43, 55, 54, 53, 52, 51, 50, 49, 47, 46, 37 except 31=162(LC 9), 33=224(LC 13), 34=177(LC 24), 56=109(LC 12)
Max Grav All reactions 250 lb or less at joint(s) 1, 44, 34, 35, 36, 38, 39, 40, 41, 42, 43, 55, 54, 53, 52, 51, 50, 49, 48, 47, 46, 45, 37 except 31=353(LC 24), 33=668(LC 24), 56=281(LC 23)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 11-12=70/252, 16-17=71/261
WEBS 29-33=411/265

- NOTES-**
- Unbalanced roof live loads have been considered for this design.
 - Wind: ASCE 7-10; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=3.0psf; h=18ft; Cat. II; Exp B; Encl., GCpi=0.18; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; porch 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.
 - 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 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 - All bearings are assumed to be SP No.2 crushing capacity of 565 psi.
 - Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 1, 44, 35, 36, 38, 39, 40, 41, 42, 43, 55, 54, 53, 52, 51, 50, 49, 47, 46, 37 except (it=lb) 31=162, 33=224, 34=177, 56=109.
 - Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.



September 20, 2019

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.

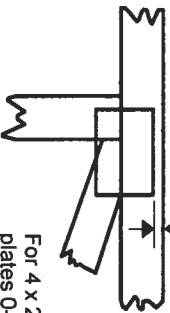
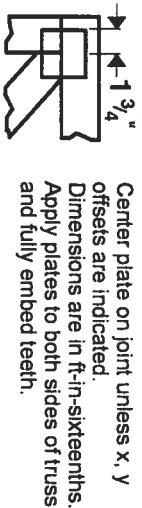
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall 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, 218 N. Lee Street, Suite 312, Alexandria, VA 22314.



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Symbols

PLATE LOCATION AND ORIENTATION



For 4 x 2 orientation, locate plates 0- $\frac{1}{16}$ " from outside edge of truss.



* Plate location details available in Mitek 2020 software or upon request.

PLATE SIZE

4 X 4

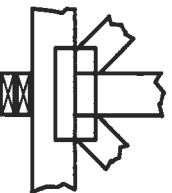
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

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

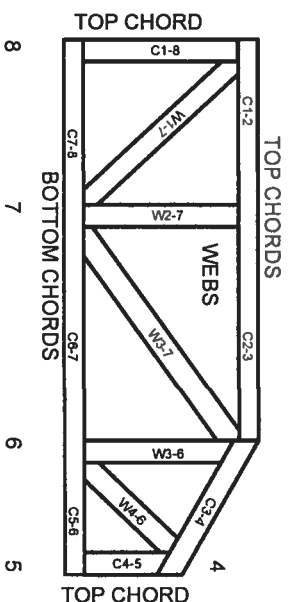


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

Industry Standards:

- ANSI/TP1: National Design Specification for Metal Plate Connected Wood Truss Construction.
- DSB-89: Design Standard for Bracing.
- 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/TP1 1 section 6.3 These truss designs rely on lumber values established by others.

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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 ware 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.



Builders First Source - Lake City

2525 East Duval St, Lake City FL 32055

Phone: 386-755-6894 Fax: 386-755-7973

Date:	9/20/2019		
Customer:	Glenwood King Const.	Phone #:	
Job Name:	Lang Res.		
Jobsite Address:	Columbia City		
Pitch:	TC 6:12 - 2:12/ BC 3:12	Loading:	Shingle
Top Chord:	2x4	Bearing:	4"
Overhangs:	24"	Spacing:	24"
Quoted By:	Kim Holloway		
Sales Rep:	Kim Holloway		

Details

ROOF TRUSSES WITH
TRUSS TO TRUSS CONNECTORS

Price

1st Level Roof Trusses \$7,335.00

Pre-Tax Sub-Total \$7,335.00

Tax \$490.10

Total Including Tax \$7,825.10

No Additional Options

Bid includes hangers for truss to truss/ledger/beam attachments only. (Tie downs, nails, and truss clips are NOT included.)
Note: Hip & Valley blocking, Overhang Blocking, Truss Bracing (Temporary or Permanent) Not Included.

Price Quoted is valid only if accepted within 30 days and delivered within 60 days of date quote accepted: Price is subject to change outside of these terms.

To place this order, please sign and fully complete all information below and then return this proposal to:
Email to your sales person - or - Fax: 386-755-7973

It is the customer's responsibility to have access to the jobsite/delivery address by tractor-trailer.

Cash Customers: A non-refundable 20% Deposit required for truss layout, balance due 2 weeks prior to fabrication. Once order is received in truss office, a truss layout and truss profiles will be provided.

Customer is responsible to notify Builders FirstSource Truss within 24 hours of delivery of any mold, mildew, termites, damaged trusses or missing material.

A \$50.00 per hour charge will be added for layout revisions. A \$100.00 fee will be assessed for replacement sealed engineering packages lost, misplaced, or damaged by customer

Please examine this quote, as we agree to furnish at the price herein specified only the articles named and described herein.

Order accepted by, or in production by BFS, its affiliates, subsidiaries, successors and/or assigns cannot be changed or cancelled except at the expense of purchaser.

Customers on Account: upon cancellation, a fee of 20% of the total purchase price will be charged for Placement Plan and/or Truss Profiles (does not apply to cash customers.)

BFS will not be liable for back charges unless approved by representative before the work creating any change is performed.

Price is not to be assumed as valid if plan is repeated at a later date, new quote must be requested for new project.

X	
Customer Authorized Signature Above	Date
Customer Authorized Purchaser (Print Name Above)	Requested Delivery Date
Customer Contact for Delivery Scheduling (Print Name Above)	Phone #
Email Address	

AGREED

BFS, subsidiaries and/or assigns agrees to furnish components as described above.

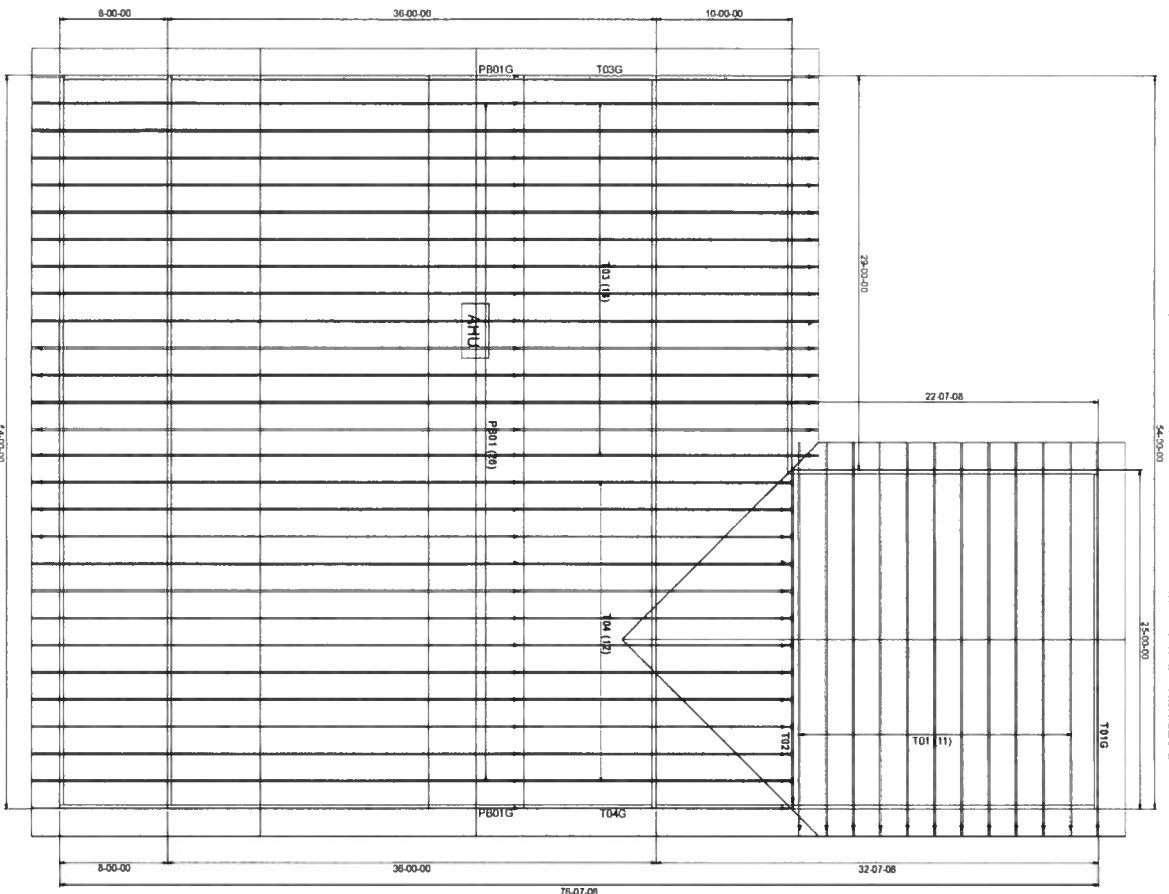
Kim Holloway

BFS Authorized by

9/20/2019

Date

Price Quoted is valid only if accepted within 30 days and delivered within 60 days of date quote accepted; Price is subject to change outside of these terms.



3/12 PITCH FRONT PORCH ONLY

FL Approval Codes - Mitek Plates #'s 2197.2 - 2197.4, Versa-Lam #1644-R4 & BCI Joists #1392-R4

6/12 PITCH
24" O/H

BEARING HEIGHT SCHEDULE

9' 1 1/8"

NOTES:

- 1) REFER TO THE RECOMMENDATION FOR WALLING, INSULATION AND THERMAL BREAKING FOR THE SPECIFIC JOIST TYPE.
- 2) ALL JOISTS MUST BE INSTALLED WITH THE "VALLEY" TOWARD THE EXTERIOR UNLESS OTHERWISE SPECIFIED.
- 3) ALL WALLS AND CEILING SHALL BE CONSTRUCTIONALLY DETACHED FROM THE JOISTS.
- 4) ALL JOISTS ARE REQUIRED TO BE INSTALLED WITH THE "VALLEY" TOWARD THE EXTERIOR UNLESS OTHERWISE SPECIFIED.
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Jack's on the Hill
Tampa
PHONE: 813-772-4400 FAX: 813-772-4403
Tampa
PHONE: 813-441-8811 FAX: 813-441-8812
Lakeland
PHONE: 888-772-4400 FAX: 888-772-4403

Jack's on the Hill
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PHONE: 813-441-8811 FAX: 813-441-8812
Lakeland
PHONE: 888-772-4400 FAX: 888-772-4403

DATE	BY	REVISION
9-20-19	KJH	2092343
9-20-19	KJH	2092343

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

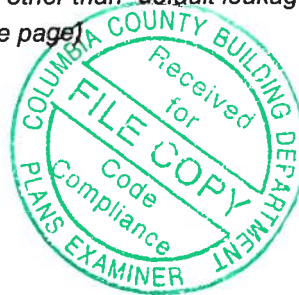
Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method

Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:

- ☐ This checklist
- ☐ A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an input summary checklist that can be used for field verification (usually four pages/may be greater).
- ☐ Energy Performance Level (EPL) Display Card (one page)
- ☐ HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7
- ☐ Mandatory Requirements (five pages)

Required prior to CO for the Performance Method:

- ☐ Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- ☐ A completed Envelope Leakage Test Report (usually one page)
- ☐ If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)




FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: 191053 Lang Street: 838 sw Cannon Creek City, State, Zip: Lake City , FL , 32024 Owner: Curt & Sheila Lang Design Location: FL, Gainesville	Builder Name: Glenwood King Construction Permit Office: Permit Number: Jurisdiction: County: Columbia (Florida Climate Zone 2)
--	--

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Glass/Floor Area: 0.134	Total Proposed Modified Loads: 52.49	PASS
	Total Baseline Loads: 52.25	

<p>I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.</p> <p>PREPARED BY: Evan Beamsley DATE: 2019-09-19</p> <p>I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.</p> <p>OWNER/AGENT: _____ DATE: _____</p>	<p>Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.</p> <div style="text-align: center;">  </div> <p>BUILDING OFFICIAL: _____ DATE: _____</p>
--	---

- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.3.2.1.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 7.00 ACH50 (R402.4.1.2).

INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	191053 Lang	Bedrooms:	2	Address Type:	Street Address
Building Type:	User	Conditioned Area:	1944	Lot #	
Owner Name:	Curt & Sheila Lang	Total Stories:	1	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:	Glenwood King Construction	Rotate Angle:	180	Street:	838 sw Cannon Creek
Permit Office:		Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	Lake City , FL , 32024
Family Type:	Single-family				
New/Existing:	New (From Plans)				
Comment:					

CLIMATE

✓	Design Location	TMY Site	Design Temp 97.5 %	2.5 %	Int Design Temp Winter	Summer	Heating Degree Days	Design Moisture	Daily Temp Range
_____	FL, Gainesville	FL_GAINESVILLE_REGI	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	1944	17884.8

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	1944	17884.8	Yes	4	2	1	Yes	Yes	Yes

FLOORS

✓	#	Floor Type	Space	Perimeter	R-Value	Area	Tile	Wood	Carpet	
_____	1	Slab-On-Grade Edge Insulatio	Main	180 ft	0	1944 ft²	_____	0.3	0.3	0.4

ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Metal	2174 ft²	486 ft²	Dark	N	0.9	No	0.9	No	0	26.6

ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	1944 ft²	N	N

CEILING

✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	38	Blown	1944 ft²	0	Wood
_____	2	Knee Wall (Vented)	Main	30	Batt	108 ft²	0.11	Wood

INPUT SUMMARY CHECKLIST REPORT

WALLS

✓	#	Omt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	In	Height Ft	In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
	1	N=>S	Exterior	Frame - Wood	Main	13	29	0	9	0	261.0 ft²		0.23	0.75	0
	2	N=>S	Exterior	Frame - Wood	Main	13	25		9		225.0 ft²		0.23	0.75	0
	3	E=>W	Exterior	Frame - Wood	Main	13	36		9		324.0 ft²		0.23	0.75	0
	4	S=>N	Exterior	Frame - Wood	Main	13	54		9		486.0 ft²		0.23	0.75	0
	5	W=>E	Exterior	Frame - Wood	Main	13	36		9		324.0 ft²		0.23	0.75	0
	6	S=>N	Exterior	Frame - Wood	Main	13	6		6		36.0 ft²		0.23	0.75	0

DOORS

✓	#	Omt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
	1	N=>S	Insulated	Main	None	.4	1		6	8	6.7 ft²
	2	N=>S	Insulated	Main	None	.4	1		6	8	6.7 ft²
	3	S=>N	Insulated	Main	None	.4	1	6	6	8	10 ft²

WINDOWS

Orientation shown is the entered orientation (=>) changed to As Built (rotated 180 degrees).

✓	#	Omt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening
	1	N=>S	1	Metal	Low-E Double	Yes	0.3	0.2	N	18.0 ft²	11 ft 6 in	1 ft 0 in	None	None
	2	N=>S	1	Metal	Low-E Double	Yes	0.3	0.2	N	26.7 ft²	11 ft 6 in	1 ft 0 in	None	None
	3	N=>S	2	Metal	Low-E Double	Yes	0.3	0.2	N	6.0 ft²	32 ft 8 in	1 ft 0 in	None	None
	4	N=>S	2	Metal	Low-E Double	Yes	0.3	0.2	N	8.8 ft²	32 ft 8 in	1 ft 0 in	None	None
	5	E=>W	3	Metal	Low-E Double	Yes	0.3	0.2	N	30.0 ft²	1 ft 6 in	5 ft 0 in	None	None
	6	S=>N	4	Metal	Low-E Double	Yes	0.3	0.2	N	27.0 ft²	9 ft 6 in	1 ft 0 in	None	None
	7	S=>N	4	Metal	Low-E Double	Yes	0.3	0.2	N	72.0 ft²	9 ft 6 in	1 ft 0 in	None	None
	8	S=>N	4	Metal	Low-E Double	Yes	0.3	0.2	N	10.0 ft²	9 ft 6 in	1 ft 0 in	None	None
	9	S=>N	4	Metal	Low-E Double	Yes	0.3	0.2	N	3.0 ft²	9 ft 6 in	1 ft 0 in	None	None
	10	S=>N	4	Metal	Low-E Double	Yes	0.3	0.2	N	4.0 ft²	9 ft 6 in	1 ft 0 in	None	None
	11	W=>E	5	Metal	Low-E Double	Yes	0.3	0.2	N	10.0 ft²	1 ft 6 in	8 ft 0 in	None	None
	12	W=>E	5	Metal	Low-E Double	Yes	0.3	0.2	N	36.0 ft²	1 ft 6 in	6 ft 0 in	None	None
	13	S=>N	6	Metal	Low-E Double	Yes	0.3	0.2	N	10.0 ft²	1 ft 6 in	2 ft 0 in	None	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000409	2086.6	114.55	215.43	.1628	7

INPUT SUMMARY CHECKLIST REPORT

HEATING SYSTEM

<input checked="" type="checkbox"/>	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
<input type="checkbox"/>	1	Electric Heat Pump/	None	HSPF:8.8	32 kBtu/hr	1	sys#1

COOLING SYSTEM

<input checked="" type="checkbox"/>	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
<input type="checkbox"/>	1	Central Unit/	None	SEER: 15	32 kBtu/hr	960 cfm	0.75	1	sys#1

HOT WATER SYSTEM

<input checked="" type="checkbox"/>	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
<input type="checkbox"/>	1	Electric	None	Main	0.95	50 gal	50 gal	120 deg	None

SOLAR HOT WATER SYSTEM

<input checked="" type="checkbox"/>	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
<input type="checkbox"/>	None	None			ft²		

DUCTS

<input checked="" type="checkbox"/>	#	--- Supply --- Location	R-Value	Area	--- Return --- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat Cool
<input type="checkbox"/>	1	Attic	6	388.8 ft	Attic	97.2 ft²	Default Leakage	Main	(Default)	(Default)			1 1

TEMPERATURES

Programable Thermostat: Y				Ceiling Fans:									
Cooling	<input type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input checked="" type="checkbox"/> Jun	<input checked="" type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input checked="" type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec	
Heating	<input checked="" type="checkbox"/> Jan	<input checked="" type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec	
Venting	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input checked="" type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input checked="" type="checkbox"/> Oct	<input checked="" type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec	
Thermostat Schedule: HERS 2006 Reference													
Schedule Type		1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM PM	78 80	78 80	78 80	78 80	78 78	78 78	78 78	78 78	80 78	80 78	80 78	80 78
Cooling (WEH)	AM PM	78 80	78 80	78 80	78 80	78 78	78 78	78 78	78 78	80 78	80 78	80 78	80 78
Heating (WD)	AM PM	65 68	65 68	65 68	65 68	65 68	65 68	65 68	68 68	68 68	68 68	68 68	68 68
Heating (WEH)	AM PM	65 68	65 68	65 68	65 68	65 68	65 68	65 68	68 68	68 68	68 68	68 68	68 68

MASS

Mass Type	Area	Thickness	Furniture Fraction	Space
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	Main

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD**ESTIMATED ENERGY PERFORMANCE INDEX* = 100****The lower the Energy Performance Index, the more efficient the home.**

1. New home or, addition	1. <u>New (From Plans)</u>	12. Ducts, location & insulation level
2. Single-family or multiple-family	2. <u>Single-family</u>	a) Supply ducts R <u>6.0</u>
3. No. of units (if multiple-family)	3. <u>1</u>	b) Return ducts R <u>6.0</u>
4. Number of bedrooms	4. <u>2</u>	c) AHU location <u>Main</u>
5. Is this a worst case? (yes/no)	5. <u>No</u>	13. Cooling system: Capacity <u>32.0</u>
6. Conditioned floor area (sq. ft.)	6. <u>1944</u>	a) Split system SEER <u> </u>
7. Windows, type and area		b) Single package SEER <u> </u>
a) U-factor:(weighted average)	7a. <u>0.300</u>	c) Ground/water source SEER/COP <u> </u>
b) Solar Heat Gain Coefficient (SHGC)	7b. <u>0.200</u>	d) Room unit/PTAC EER <u> </u>
c) Area	7c. <u>261.4</u>	e) Other <u>15.0</u>
8. Skylights		14. Heating system: Capacity <u>32.0</u>
a) U-factor:(weighted average)	8a. <u>NA</u>	a) Split system heat pump HSPF <u> </u>
b) Solar Heat Gain Coefficient (SHGC)	8b. <u>NA</u>	b) Single package heat pump HSPF <u> </u>
9. Floor type, insulation level:		c) Electric resistance COP <u> </u>
a) Slab-on-grade (R-value)	9a. <u>0.0</u>	d) Gas furnace, natural gas AFUE <u> </u>
b) Wood, raised (R-value)	9b. <u> </u>	e) Gas furnace, LPG AFUE <u> </u>
c) Concrete, raised (R-value)	9c. <u> </u>	f) Other <u>8.80</u>
10. Wall type and insulation:		15. Water heating system
A. Exterior:		a) Electric resistance EF <u>0.95</u>
1. Wood frame (Insulation R-value)	10A1. <u>13.0</u>	b) Gas fired, natural gas EF <u> </u>
2. Masonry (Insulation R-value)	10A2. <u> </u>	c) Gas fired, LPG EF <u> </u>
B. Adjacent:		d) Solar system with tank EF <u> </u>
1. Wood frame (Insulation R-value)	10B1. <u> </u>	e) Dedicated heat pump with tank EF <u> </u>
2. Masonry (Insulation R-value)	10B2. <u> </u>	f) Heat recovery unit HeatRec% <u> </u>
11. Ceiling type and insulation level		g) Other <u> </u>
a) Under attic	11a. <u>38.0</u>	16. HVAC credits claimed (Performance Method)
b) Single assembly	11b. <u> </u>	a) Ceiling fans <u> </u>
c) Knee walls/skylight walls	11c. <u>30.0</u>	b) Cross ventilation <u>No</u>
d) Radiant barrier installed	11d. <u>No</u>	c) Whole house fan <u>No</u>
		d) Multizone cooling credit <u> </u>
		e) Multizone heating credit <u> </u>
		f) Programmable thermostat <u>Yes</u>

*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

I certify that this home has complied with the Florida Building Code, Energy Conservation, through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL display card will be completed based on installed code compliant features.

Builder Signature: _____ Date: _____

Address of New Home: 838 sw Cannon Creek City/FL Zip: Lake City, FL 32024

Florida Building Code, Energy Conservation, 6th Edition (2017)

Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: 838 sw Cannon Creek
Lake City, FL, 32024

Permit Number:

MANDATORY REQUIREMENTS See individual code sections for full details.

✓

SECTION R401 GENERAL

- ☐ **R401.3 Energy Performance Level (EPL) display card (Mandatory).** The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

- ☐ **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

Exception: Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.

- ☐ **R402.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

- ☐ **R402.4.1.1 Installation.** The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

- ☐ **R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

Exception: Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

- ☐ **R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

- ☐ **R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

Exception: Site-built windows, skylights and doors.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

Exceptions:

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

- ☐ **R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

SECTION R403 SYSTEMS

R403.1 Controls.

- ☐ **R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

- ☐ **R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

- ☐ **R403.3.2 Sealing (Mandatory)** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), Florida Statutes, to be "substantially leak free" in accordance with Section R403.3.3.

- ☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

- ☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exceptions:

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying with Section 405 of this code.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

- ☐ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

- ☐ **R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

- ☐ **R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

- ☐ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory)** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

- ☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

- ☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.5.5 Heat traps (Mandatory).** Storage water heaters not equipped with integral heat traps and having vertical pipe risers shall have heat traps installed on both the inlets and outlets. External heat traps shall consist of either a commercially available heat trap or a downward and upward bend of at least 3 ½ inches (89 mm) in the hot water distribution line and cold water line located as close as possible to the storage tank.
- R403.5.6 Water heater efficiencies (Mandatory).**
- ☐ **R403.5.6.1.1 Automatic controls.** Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. The minimum temperature setting range shall be from 100°F to 140°F (38°C to 60°C).
- ☐ **R403.5.6.1.2 Shut down.** A separate switch or a clearly marked circuit breaker shall be provided to permit the power supplied to electric service systems to be turned off. A separate valve shall be provided to permit the energy supplied to the main burner(s) of combustion types of service water-heating systems to be turned off.
- ☐ **R403.5.6.2 Water-heating equipment.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2 in Chapter 4 of the Florida Building Code, Energy Conservation, Commercial Provisions, for the type of equipment installed. Equipment used to provide heating functions as part of a combination system shall satisfy all stated requirements for the appropriate water-heating category. Solar water heaters shall meet the criteria of Section R403.5.6.2.1.
- ☐ **R403.5.6.2.1 Solar water-heating systems.** Solar systems for domestic hot water production are rated by the annual solar energy factor of the system. The solar energy factor of a system shall be determined from the Florida Solar Energy Center Directory of Certified Solar Systems. Solar collectors shall be tested in accordance with ISO Standard 9806, Test Methods for Solar Collectors, and SRCC Standard TM-1, Solar Domestic Hot Water System and Component Test Protocol. Collectors in installed solar water-heating systems should meet the following criteria:
1. Be installed with a tilt angle between 10 degrees and 40 degrees of the horizontal; and
 2. Be installed at an orientation within 45 degrees of true south.
- ☐ **R403.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the Florida Building Code, Residential, or Florida Building Code, Mechanical, as applicable, or with other approved means of ventilation including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- ☐ **R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.
- Exception:** Where whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.
- ☐ **R403.6.2 Ventilation air.** Residential buildings designed to be operated at a positive indoor pressure or for mechanical ventilation shall meet the following criteria:
1. The design air change per hour minimums for residential buildings in ASHRAE 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.
 2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.
 3. If ventilation air is drawn from enclosed space(s), then the walls of the space(s) from which air is drawn shall be insulated to a minimum of R-11 and the ceiling shall be insulated to a minimum of R-19, space permitting, or R-10 otherwise.
- R403.7 Heating and cooling equipment (Mandatory).**
- ☐ **R403.7.1 Equipment sizing.** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the equipment loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, based on building loads for the directional orientation of the building. The manufacturer and model number of the outdoor and indoor units (if split system) shall be submitted along with the sensible and total cooling capacities at the design conditions described in Section R302.1. This Code does not allow designer safety factors, provisions for future expansion or other factors that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**TABLE R403.6.1
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY ^a (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.7.1.1 Cooling equipment capacity.** Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section 403.7, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.

The published value for AHRI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment. This selection shall be based on the outdoor design dry-bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet-bulb temperature and the design value for entering dry-bulb temperature.

Design values for entering wet-bulb and dry-bulb temperatures shall be for the indoor dry bulb and relative humidity used for the load calculation and shall be adjusted for return side gains if the return duct(s) is installed in an unconditioned space.

Exceptions:

1. Attached single- and multiple-family residential equipment sizing may be selected so that its cooling capacity is less than the calculated total sensible load but not less than 80 percent of that load.
2. When signed and sealed by a Florida-registered engineer, in attached single- and multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

R403.7.1.2 Heating equipment capacity.

- ☐ **R403.7.1.2.1 Heat pumps.** Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.

- ☐ **R403.7.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.

- ☐ **R403.7.1.2.3 Fossil fuel heating equipment.** The capacity of fossil fuel heating equipment with natural draft atmospheric burners shall not be less than the design load calculated in accordance with Section R403.7.1.

- ☐ **R403.7.1.3 Extra capacity required for special occasions.** Residences requiring excess cooling or heating equipment capacity on an intermittent basis, such as anticipated additional loads caused by major entertainment events, shall have equipment sized or controlled to prevent continuous space cooling or heating within that space by one or more of the following options:

1. A separate cooling or heating system is utilized to provide cooling or heating to the major entertainment areas.
2. A variable capacity system sized for optimum performance during base load periods is utilized.

- ☐ **R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the IECC—Commercial Provisions in lieu of Section R403.

- ☐ **R403.9 Snow melt and ice system controls (Mandatory)** Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).

- ☐ **R403.10 Pools and permanent spa energy consumption (Mandatory).** The energy consumption of pools and permanent spas shall be in accordance with Sections R403.10.1 through R403.10.5.

- ☐ **R403.10.1 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

- ☐ **R403.10.2 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

- ☐ **R403.10.3 Covers.** Outdoor heated swimming pools and outdoor permanent spas shall be equipped with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

Exception: Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

- ☐ **R403.10.4 Gas- and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013, when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

☐ **R403.10.5 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with AHRI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance. Geothermal swimming pool heat pumps are not required to meet this standard.

☐ **R403.11 Portable spas (Mandatory)** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

SECTION R404

ELECTRICAL POWER AND LIGHTING SYSTEMS

☐ **R404.1 Lighting equipment (Mandatory).** Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Exception: Low-voltage lighting.

R404.1.1 Lighting equipment (Mandatory) Fuel gas lighting systems shall not have continuously burning pilot lights.

2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name: 191053 Lang Street: 838 sw Cannon Creek City, State, Zip: Lake City , FL , 32024 Owner: Curt & Sheila Lang Design Location: FL, Gainesville			Builder Name: Glenwood King Construction Permit Office: Permit Number: Jurisdiction:	CHECK
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA		
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.		
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.		
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.		
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.			
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.		
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.		
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace		
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.			
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces.		
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.			
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the drywall.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.		
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.		
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.		
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.			
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.			

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

Envelope Leakage Test Report (Blower Door Test)

Residential Prescriptive, Performance or ERI Method Compliance

2017 Florida Building Code, Energy Conservation, 6th Edition

Jurisdiction:

Permit #:

Job Information

Builder: Glenwood King Construction Community:

Lot: NA

Address: 838 sw Cannon Creek

City: Lake City

State: FL

Zip: 32024

Air Leakage Test Results *Passing results must meet either the Performance, Prescriptive, or ERI Method*

☐ **PRESCRIPTIVE METHOD**-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

☐ **PERFORMANCE or ERI METHOD**-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2017 (Performance) or R406-2017 (ERI), section labeled as infiltration, sub-section ACH50.
ACH(50) specified on Form R405-2017-Energy Calc (Performance) or R406-2017 (ERI): 7.000

$$\frac{\text{CFM}(50)}{\text{Building Volume}} \times 60 \div \frac{17885}{\text{ACH}(50)} =$$

☒ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

☐ Retrieved from architectural plans

☒ Code software calculated

☐ Field measured and calculated

R402.4.1.2 Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statutes*, or individuals licensed as set forth in Section 489.105(3)(f), (g), or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Testing Company

Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2017 6th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: _____ Date of Test: _____

Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____

Residential System Sizing Calculation

Summary

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang

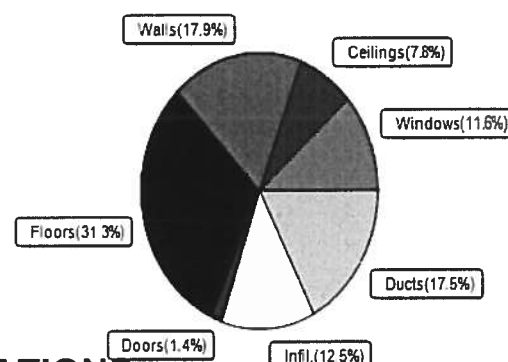
2019-09-19

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(51gr.)					
Winter design temperature(TMY3 99%)	30	F	Summer design temperature(TMY3 99%)	94	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	40	F	Summer temperature difference	19	F
Total heating load calculation	27145	Btuh	Total cooling load calculation	23838	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	117.9	32000	Sensible (SHR = 0.75)	120.5	24000
Heat Pump + Auxiliary(0.0kW)	117.9	32000	Latent	203.9	8000
			Total (Electric Heat Pump)	134.2	32000

WINTER CALCULATIONS

Winter Heating Load (for 1944 sqft)

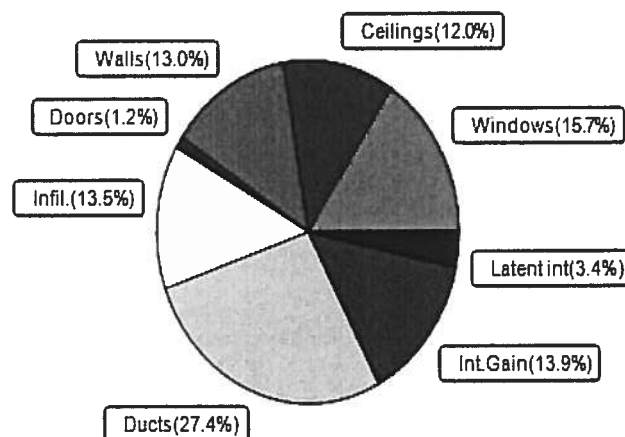
Load component			Load	
Window total	261	sqft	3137	Btuh
Wall total	1371	sqft	4868	Btuh
Door total	23	sqft	373	Btuh
Ceiling total	2052	sqft	2111	Btuh
Floor total	1944	sqft	8496	Btuh
Infiltration	78	cfm	3400	Btuh
Duct loss			4759	Btuh
Subtotal			27145	Btuh
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			27145	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1944 sqft)

Load component			Load	
Window total	261	sqft	3736	Btuh
Wall total	1371	sqft	3104	Btuh
Door total	23	sqft	280	Btuh
Ceiling total	2052	sqft	2850	Btuh
Floor total			0	Btuh
Infiltration	58	cfm	1211	Btuh
Internal gain			3320	Btuh
Duct gain			5414	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			19914	Btuh
Latent gain(ducts)			1114	Btuh
Latent gain(infiltration)			2010	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			800	Btuh
Total latent gain			3924	Btuh
TOTAL HEAT GAIN			23838	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2019-09-19

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang
Building Type: User

2019-09-19

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.20	Metal	0.30	S	18.0		12.0	216 Btuh
2	2, NFRC 0.20	Metal	0.30	S	26.7		12.0	320 Btuh
3	2, NFRC 0.20	Metal	0.30	S	6.0		12.0	72 Btuh
4	2, NFRC 0.20	Metal	0.30	S	8.8		12.0	105 Btuh
5	2, NFRC 0.20	Metal	0.30	W	30.0		12.0	360 Btuh
6	2, NFRC 0.20	Metal	0.30	N	27.0		12.0	324 Btuh
7	2, NFRC 0.20	Metal	0.30	N	72.0		12.0	864 Btuh
8	2, NFRC 0.20	Metal	0.30	N	10.0		12.0	120 Btuh
9	2, NFRC 0.20	Metal	0.30	N	3.0		12.0	36 Btuh
10	2, NFRC 0.20	Metal	0.30	N	4.0		12.0	48 Btuh
11	2, NFRC 0.20	Metal	0.30	E	10.0		12.0	120 Btuh
12	2, NFRC 0.20	Metal	0.30	E	36.0		12.0	432 Btuh
13	2, NFRC 0.20	Metal	0.30	N	10.0		12.0	120 Btuh
Window Total					261.4(sqft)			3137 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	203		3.55	721 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	210		3.55	746 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	294		3.55	1044 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	360		3.55	1278 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	278		3.55	987 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	26		3.55	92 Btuh
Wall Total					1371(sqft)			4868 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		7		16.0	107 Btuh
2	Insulated - Exterior, n		(0.400)		7		16.0	107 Btuh
3	Insulated - Exterior, n		(0.400)		10		16.0	160 Btuh
Door Total					23(sqft)			373Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/D/Metal		(0.025)	38.0/0.0	1944		1.0	1974 Btuh
2	Knee Wall/D/Metal		(0.032)	30.0/0.0	108		1.3	138 Btuh
Ceiling Total					2052(sqft)			2111Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	180.0 ft(perim.)		47.2	8496 Btuh
Floor Total					1944 sqft			8496 Btuh
Envelope Subtotal:								18986 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.26	17885	1.00	77.6		3400 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang
Building Type: User

2019-09-19

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.213)	4759 Btuh
All Zones	Sensible Subtotal All Zones	27145 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27145 Btuh 0 Btuh 27145 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32000 Btuh
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Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)
or - Glass as 'Clear' or 'Tint' (Uses U-Factor and SHGC defaults)

U - (Window U-Factor)

HTM - (ManualJ Heat Transfer Multiplier)



Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang

2019-09-19

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

Component Loads for Whole House

Window	Type*						Overhang		Window Area(sqft)			HTM		Load	
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded		
1	2 NFRC	0.20, 0.30	No	No	S		11.5f	1.0ft.	18.0	18.0	0.0	10	11	178	Btuh
2	2 NFRC	0.20, 0.30	No	No	S		11.5f	1.0ft.	26.7	26.7	0.0	10	11	264	Btuh
3	2 NFRC	0.20, 0.30	No	No	S		32.7f	1.0ft.	6.0	6.0	0.0	10	11	59	Btuh
4	2 NFRC	0.20, 0.30	No	No	S		32.7f	1.0ft.	8.8	8.8	0.0	10	11	87	Btuh
5	2 NFRC	0.20, 0.30	No	No	W		1.5ft.	5.0ft.	30.0	0.0	30.0	10	25	749	Btuh
6	2 NFRC	0.20, 0.30	No	No	N		9.5ft.	1.0ft.	27.0	0.0	27.0	10	10	267	Btuh
7	2 NFRC	0.20, 0.30	No	No	N		9.5ft.	1.0ft.	72.0	0.0	72.0	10	10	713	Btuh
8	2 NFRC	0.20, 0.30	No	No	N		9.5ft.	1.0ft.	10.0	0.0	10.0	10	10	99	Btuh
9	2 NFRC	0.20, 0.30	No	No	N		9.5ft.	1.0ft.	3.0	0.0	3.0	10	10	30	Btuh
10	2 NFRC	0.20, 0.30	No	No	N		9.5ft.	1.0ft.	4.0	0.0	4.0	10	10	40	Btuh
11	2 NFRC	0.20, 0.30	No	No	E		1.5ft.	8.0ft.	10.0	0.0	10.0	10	25	250	Btuh
12	2 NFRC	0.20, 0.30	No	No	E		1.5ft.	6.0ft.	36.0	0.0	36.0	10	25	899	Btuh
13	2 NFRC	0.20, 0.30	No	No	N		1.5ft.	2.0ft.	10.0	0.0	10.0	10	10	99	Btuh
	Window Total								261 (sqft)					3736 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext	0.09	13.0/0.0	203.0	2.3	459	Btuh								
2	Frame - Wood - Ext	0.09	13.0/0.0	210.3	2.3	476	Btuh								
3	Frame - Wood - Ext	0.09	13.0/0.0	294.0	2.3	665	Btuh								
4	Frame - Wood - Ext	0.09	13.0/0.0	360.0	2.3	815	Btuh								
5	Frame - Wood - Ext	0.09	13.0/0.0	278.0	2.3	629	Btuh								
6	Frame - Wood - Ext	0.09	13.0/0.0	26.0	2.3	59	Btuh								
	Wall Total								1371 (sqft)		3104 Btuh				
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load					
1	Insulated - Exterior	6.7	12.0	80	Btuh										
2	Insulated - Exterior	6.7	12.0	80	Btuh										
3	Insulated - Exterior	10.0	12.0	120	Btuh										
	Door Total								23 (sqft)		280 Btuh				
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/DarkMetal	0.025	38.0/0.0	1944.0	1.37	2664	Btuh								
2	Knee Wall/DarkMetal	0.032	30.0/0.0	108.0	1.72	186	Btuh								
	Ceiling Total								2052 (sqft)		2850 Btuh				
Floors	Type	U-Value		R-Value		Size		HTM		Load					
1	Slab On Grade	0.0	1944 (ft-perimeter)	0.0	0	Btuh									
	Floor Total								1944.0 (sqft)		0 Btuh				
	Envelope Subtotal:											9969 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang

Climate:FL_GAINESVILLE_REGIONAL_A

2019-09-19

Infiltration	Type Natural	Average ACH 0.20	Volume(cuft) 17885	Wall Ratio 1	CFM= 58.2	Load 1211 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	2400	Load 3320 Btuh
	Sensible Envelope Load:					14501 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.373)					5414 Btuh
	Sensible Load All Zones					19914 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Curt & Sheila Lang
838 sw Cannon Creek
Lake City, FL 32024

Project Title:
191053 Lang

Climate:FL_GAINESVILLE_REGIONAL_A

2019-09-19

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14501 Btuh
	Sensible Duct Load	5414 Btuh
	Total Sensible Zone Loads	19914 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19914 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2010 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1114 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3924 Btuh
	TOTAL GAIN	23838 Btuh

EQUIPMENT

1. Central Unit	#	32000 Btuh
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*Key: Window types (Panels - Number and type of panes of glass)
(SHGC - Shading coefficient of glass as SHGC numerical value)
(U - Window U-Factor)
(InSh - Interior shading device: none(No), Blinds(B), Draperies(D) or Roller Shades(R))
- For Blinds: Assume medium color, half closed
For Draperies: Assume medium weave, half closed
For Roller shades: Assume translucent, half closed
(IS - Insect screen: none(N), Full(F) or Half(½))
(Ornt - compass orientation)



Version 8