Spec Home (for Mike Todd)
Wind Load Analysis Requirements & Site Evaluation

206 SE Sandia Way, Lake City, Columbia County, Florida
(In Compliance with the 2020 Florida Building Code)

Prepared By: Marty J. Humphries, P.E. # 51976
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(386)362-9169

Description of Residence:

Footprint: 71' wide by 44 deep overall with inset front and rear porches and garage on right side (see plans by Mike Todd)

Walls: 2x4 SPF stud wall with studs 16" O.C. with 7/16" OSB sheathing, house-wrap and hardiboard lap siding.

Roof Structure: Pre-engineered roof trusses at 2' on center and 15/32" OSB or CDX plywood sheathing

Roof Type: Hip roof primarily with two small gables at front of home (analyzed for 2' eaves and porches)

Foundation: Stem-wall (See Attached Details)

Windload Data and Exposure:

Basic Wind Speed = 120 mph
Importance Factor = 1.0
Exposure category = B
Height and Exposure Adjustment Coefficient = 1.0
Residential Occupancy = Group R3
Mean roof height = 16'
Roof Cross Slope = 5:12
Eave Overhang= (Analyzed for 2' eaves and porch areas)
Wall Height = 9'
Shear Wall locations = exterior walls (all walls 3' in length or greater
Component and Cladding Pressures = Roof (Zone 1=11.6,-22.1, Zone 2=11.6,-35.3, Zone 3=11.6,-41.9), Wall (Zone 4=15.5,-16.9, Zone 5=15.5,-20.8) (units are psf)

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Nailing Pattern Requirements:

Wall sheathing: Shall be 7/16" Oriented Strand Board(OSB) nailed with 8d common nails 4" on center around edges(including around doors and windows) and 6" on center interior. Full-depth blocking shall be installed at horizontal joints in sheathing.

Roof sheathing: Shall be 15/32" OSB or 15/32" CDX plywood sheathing nailed with 8d ring-shank nails 6" on center including overhang areas.

Top wall plate: Nail with 2-12d common nails 16" O.C. (average)

Strapping and Anchor Requirements:

truss to exterior wall plate, interior load-bearing plate, and porch beam locations: Install Simpson model H10A hurricane anchor each truss to bearing location. Install Simpson HCP and H3 for hip trusses and Simpson H2.5A for jack trusses under 10' in length. For double ply trusses install Simpson H10A-2 and one Simpson H3 clip.

wall strap tie requirements: 2x4 exterior walls – at each door or window 4' or less in width install one Simpson model SP4 at each side - top and bottom of the wall. For each door or window over 4' in width install two Simpson model SP4's at each side - top and bottom of the wall. For garage door install 3 Simpson SPH4's each side top and bottom of the wall. For interior load bearing walls install Simpson SP4 top and bottom of the wall 32" on center and each side of door openings. All other exterior wall locations install 1-SP4 top and bottom of wall 48" on center.

Porch 4x4 or 6x6 PT columns: Install Simpson ABU44/ABU66 anchor at the base and two Simpson LSTA12's at top.

Front Porch Header to Home Connection: Install Simpson HUC48 hanger

Rear Porch Header to Home Connection: Install Simpson HUCQ412 hanger, connect with Simpson ¼" x 2 ½" screws.

Porch Ceilings :

Install 1x4 lathes 16" on center and nail with 2-8d nails at each truss and install solid metal or solid vinyl soffit material.

Foundation Requirements:

Stemwall: Minimum size of footer shall be 10" x 20" wide with 2-#5 rebar continuous and 1-#5 vertical rebar 48" on center. All cells shall be filled with concrete. 5/8"by 10" anchor bolts with 2" plate washers shall be installed 3' on center, each side of doors, and 9" from corners. (3000 psi concrete min.) Porch stemwall footer may be reduced to 16" in width. (See Details)

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Header Requirements:

Windows & Doors: For windows or doors 4' or less in width - Header shall be 2 - #2 SYP 2x10's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center. For windows or doors greater than 4' in width – header shall be 2 - #2 SYP 2x12's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center. For garage door opening header shall be 2 – 1.75" x 14" LVL's (Fb=2250 min., 1.5E min.) nailed with 4-12d nails 10" on cetner.

Porch Headers: For front porch, header shall be 2- #2 SYP 2x8's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center (9' col. spacing max.)
For rear porch, header shall be 2 – #2 SYP 2x12's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center.

Gable Bracing and Strapping Requirements:
(See Attached Detail)

Note: Equivalent capacity anchors may be substituted, installed in accordance with the manufacturers requirements.

Site Evaluation:

The home site lot located at 206 SE Sandia Way, Lake City Florida is located within the 100 year floor plane. The finished slab elevation shall be 105.5 min. (1' higher than EL 104.5, the 100 year flood elevation for this location). The FEEMA Elevation Certificate Form shall be completed by a licensed Florida Professional Land Surveyor. Elevations shall be checked prior to pouring slab. Fill placed shall be well-gradated clean sandy fill and shall be placed in 6" lifts max., machine compacted and shall have a 95% density of the maximum density for the fill material. Maximum slope shall be 1:3 starting at 4' from building. Clean vegetation on site prior to placing fill. Home shall be located to meet setback requirements. Provide positive drainage around sides of home to rear of lot.

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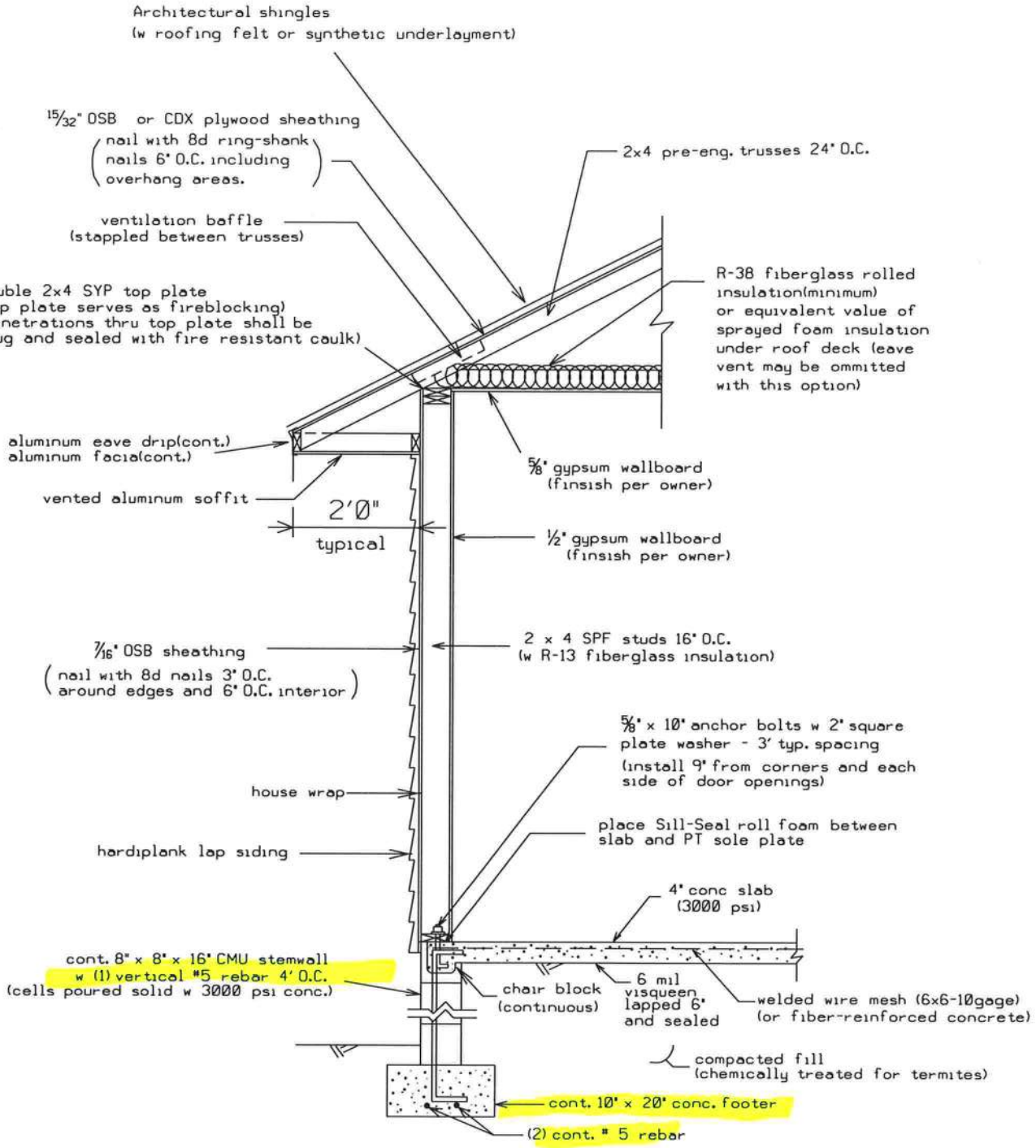

WALL TYPICAL(N.T.S.)

Note: see sheets 1, 2 & 3 for additional requirements

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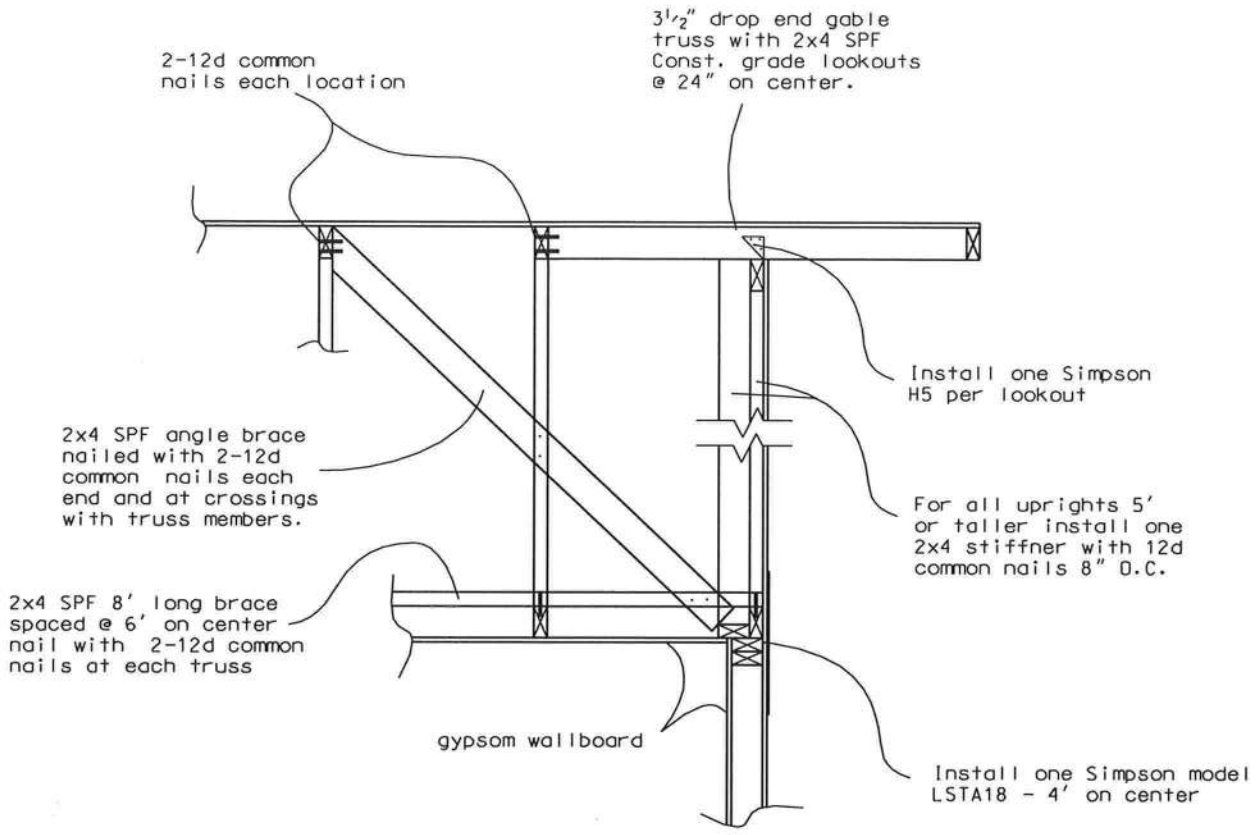
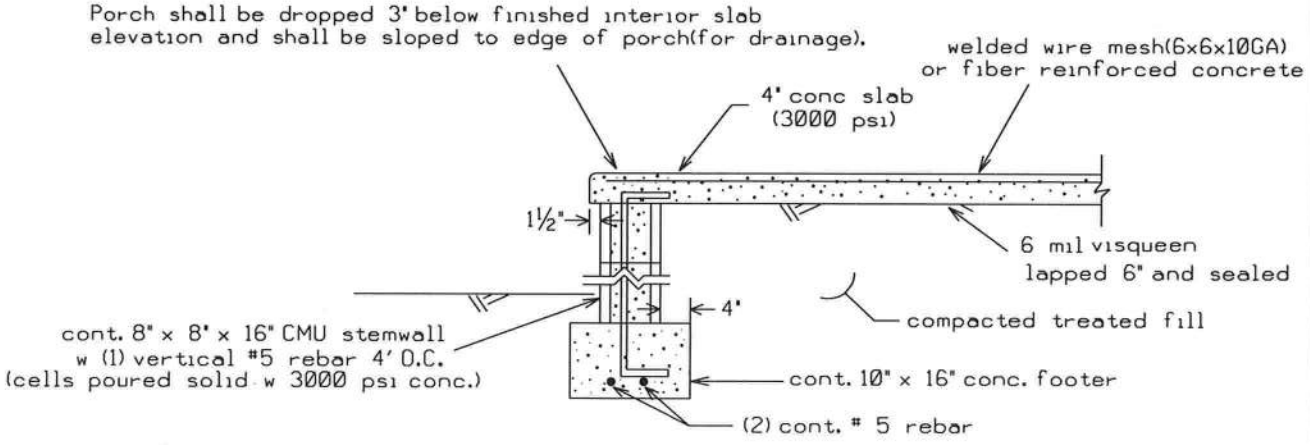
Spec Home 206 SE Sandia Way Columbia County, FL	DETAIL PREPARED BY: MARTY J. HUMPHRIES P.E. # 51976 7932 240TH ST., O'BRIEN, FL 32071	Sheet 4 Of 6



GABLE END BRACING DETAIL (N.T.S.)

NOTE: Gable end trusses shall be dropped 3½" for construction of lookouts & overhang.



PORCH FOUNDATION (N.T.S.)

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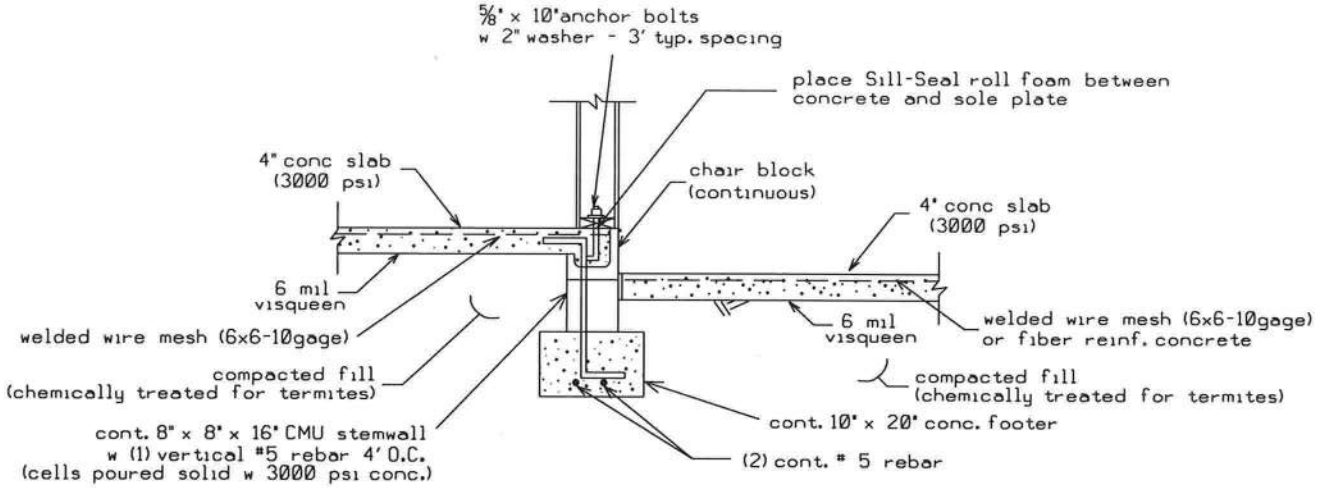
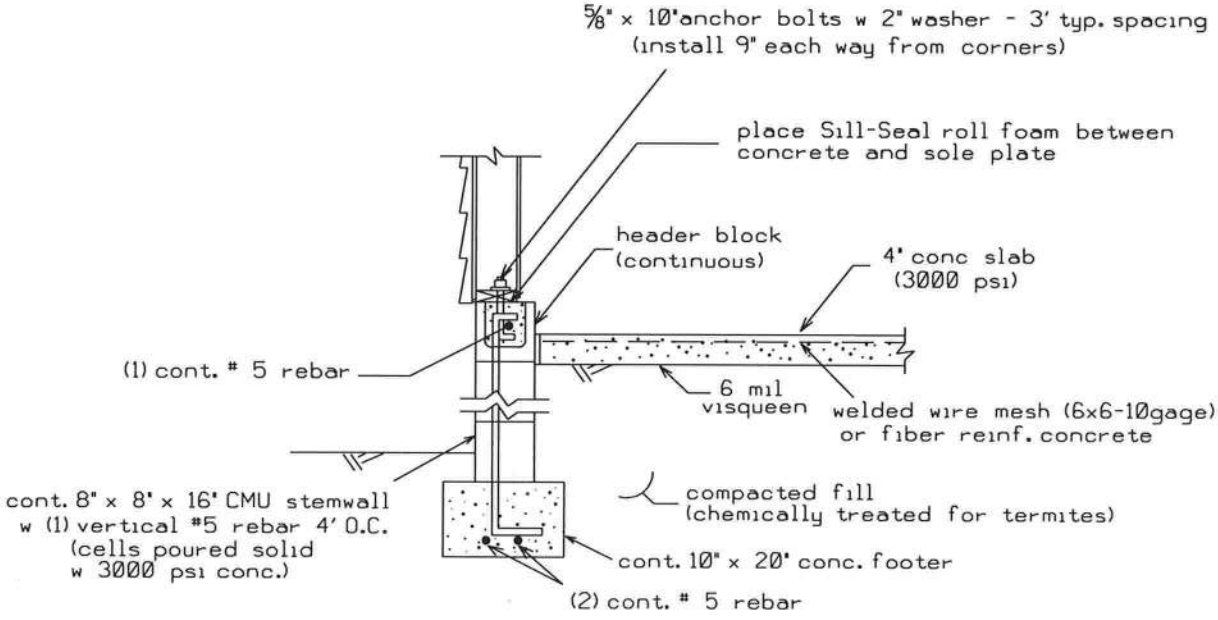


INTERIOR GARAGE STEMWALL WITH FLOATING SLAB(N.T.S.)



GARAGE STEMWALL WITH FLOATING SLAB(N.T.S.)

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ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = ____

The lower the Energy Performance Index, the more efficient the home.

1.	New home or, addition	1. New
2.	Single-family or multiple-family	2. Sgl. Fam
3.	No. of units (if multiple-family)	3. —
4.	Number of bedrooms	4. 3
5.	Is this a worst case? (yes/no)	5. NO
6.	Conditioned floor area (sq. ft.)	6. 1610
7.	Windows, type and area	
	a) *U*-factor:	7a. .28
	b) Solar Heat Gain Coefficient (SHGC)	7b. .22
	c) Area	7c.
8.	Skylights	
	a) *U*-factor	8a. —
	b) Solar Heat Gain Coefficient (SHGC)	8b. —
9.	Floor type, insulation level:	
	a) Slab-on-grade (*R*-value)	9a. 0
	b) Wood, raised (*R*-value)	9b. —
	c) Concrete, raised (*R*-value)	9c. —
10.	Wall type and insulation:	
	A. Exterior:	
	1. Wood frame (Insulation *R*-value)	10A1. 13
	2. Masonry (Insulation *R*-value)	10A2. —
	B. Adjacent:	
	1. Wood frame (Insulation *R*-value)	10B1. —
	2. Masonry (Insulation *R*-value)	10B2. —
11.	Ceiling type and insulation level	
	a) Under attic	11a. 22
	b) Single assembly	11b.
	c) Knee walls/skylight walls	11c.
	d) Radiant barrier installed	11d.
12.	Ducts, location & insulation level	
	a) Supply ducts	R= 6
	b) Return ducts	R= 6
	c) AHU location	
13.	Cooling system:	Capacity:
	a) Split system	SEER 15
	b) Single package	SEER
	c) Ground/water source	COP
	d) Room unit/PTAC	EER
	e) Other	
14.	Heating system:	
	a) Split system heat pump	HSPF 9.5
	b) Single package heat pump	HSPF
	c) Electric resistance	COP
	d) Gas furnace, natural gas	AFUE
	e) Gas furnace, LPG	AFUE ~~82~~
	f) Other	
15.	Water heating system	
	a) Electric resistance	EF
	b) Gas fired, natural gas	EF
	c) Gas fired, LPG	EF .82
	d) Solar system with tank	EF
	e) Dedicated heat pump with tank	EF
	f) Heat recovery unit	HeatRec%
	g) Other	
16.	HVAC credits claimed (Performance Method)	
	a) Ceiling fans	✓
	b) Cross ventilation	
	c) Whole house fan	
	d) Multizone cooling credit	
	e) Multizone heating credit	
	f) Programmable thermostat	

*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: [signature] Date: 6/16/21

Address of New Home: 226 Sandia Way City/FL Zip: Lake City FL 32025

Entire House	1505	25368	19844	947	947
Other equip loads		1328	656		
Equip. @ 0.97 RSM			19926		
Latent cooling			4273		
TOTALS	1505	26696	24199	947	947

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Load Short Form
Entire House
DL Williams Heating & Cooling L.L.C.

Job: 1
Date: Jun 16, 2021
By: DL Williams Heating & C...
Plan: 1

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: williamscoolingllc@gmail.com

Project Information

For: Sandia
Lake City, FL 32055

Design Information

	Htg	Clg		Infiltration
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	35	17	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	8	44		

HEATING EQUIPMENT

Make	Trane
Trade	TRANE
Model	4TWR4030G1
AHRI ref	205232837

Efficiency	8.5 HSPF	
Heating input		
Heating output	27200	Btuh @ 47°F
Temperature rise	26	°F
Actual air flow	947	cfm
Air flow factor	0.037	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

Capacity balance point = 33 °F

Backup:
Input = 8 kW, Output = 26023 Btuh, 100 AFUE

COOLING EQUIPMENT

Make	Trane
Trade	TRANE
Cond	4TWR4030G1
Coil	TEM4A0C37S31++TDR
AHRI ref	205232837

Efficiency	11.5 EER, 14 SEER	
Sensible cooling	19880	Btuh
Latent cooling	8520	Btuh
Total cooling	28400	Btuh
Actual air flow	947	cfm
Air flow factor	0.048	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.83	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
br1	168	4528	2606	169	124
br2	156	3738	1806	140	86
bath2	68	951	325	36	16
hall	52	0	0	0	0
living	346	5946	6667	222	318
kitchen	300	5354	5022	200	240
utility	66	64	670	2	32
mbath	72	69	52	3	2
wic	64	62	46	2	2
mbed	213	4657	2650	174	126

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