FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	Elizabeth Williamson Residence	Builder Name	Trent Giebelg
Street:	4277 CR 252	Permit Office:	Colubja County
City, State, Zip:	Lake City , FL , 32025-	Permit Number:	
Owner:	Elizabeth Williamson	Jurisdiction:	
Design Location:	FL, Gainesville		

1	New construction or existing	New (From Plans)		
2.	Single family or multiple family	Single-family		
3.	Number of units, if multiple family	1		
4.	Number of Bedrooms	2		
5.	Is this a worst case?	No		
6.	Conditioned floor area above grade (ft²)	888		
	Conditioned floor area below grade (ft²)	0		
7.	Windows(105 0 sqft)	Description		Area
	a. U-Factor: SHGC.	Dbl, U=0 55 SHGC=0.50		105 00 ft²
	b U-Factor. SHGC·	N/A		ft²
	c. U-Factor SHGC	N/A		ft²
	d U-Factor· SHGC·	N/A		ft²
	Area Weighted Average Overhang Depth·			1.500 ft.
	Area Weighted Average SHGC·			0.500
8.	Floor Types (888.0 sqft)		Insulation	Area
	a. Slab-On-Grade Edge Insulation		R=0 0	888.00 ft²
	b. N/A		R=	ft²
	c. N/A		R=	ft²

9	Wall Types (976.0 sqft)	Insulation	Area
	a. Frame - Wood, Exterior	R=13.0	976.00 ft²
	b N/A	R=	ft²
	c N/A	R=	ft²
	d N/A	R=	ft²
10.	Ceiling Types (888.0 sqft.)	Insulation	Area
	a. Under Attic (Vented)	R=30 0	888 00 ft²
	b. N/A	R=	ft²
	c N/A	R=	ft²
11	Ducts		R ft²
	a. Sup. Attic, Ret. Attic, AH· Main		6 177 6
12.	Cooling systems	kBtu/hr	Efficiency
	a Central Unit	18 0	SEER·14.00
13.	Heating systems	kBtu/hr	Efficiency
	a Electric Heat Pump	18 0	HSPF:7.70
14	Hot water systems		
	a. Electric		Cap. 50 gallons EF 0 950
	b Conservation features Heat Recovery Unit		
15	Credits		None

Glass/Floor Area. 0 118

Total Proposed Modified Loads. 19.83

Total Standard Reference Loads· 25.89

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY Willa H. Fraser

DATE. 10/27/13

I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.

OWNER/AGENT:_____

DATE _____

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

BUILDING OFFICIAL _____

DATE. _____

GREAT SEAL OF THE STATE OF FLORIDA * IN GOD WE TRUST *

COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

- Compliance requires completion of a Florida Air Barrier and Insulation Inspection Checklist

PROJECT

Title:	Elizabeth Williamson Residenc	Bedrooms:	2	Address Type:	Street Address
Building Type.	User	Conditioned Area.	888	Lot #	
Owner:	Elizabeth Williamson	Total Stories.	1	Block/SubDivision.	
# of Units.	1	Worst Case:	No	PlatBook:	
Builder Name:	Trent Giebeig	Rotate Angle.	0	Street	4277 CR 252
Permit Office.	Colubja County	Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip	Lake City , FL , 32025-
Family Type.	Single-family				
New/Existing.	New (From Plans)				
Comment					

CLIMATE

√	Design Location	TMY Site	IECC Zone	Design Temp 97 5 %	Design Temp 2.5 %	Int Design Temp Winter	Int Design Temp Summer	Heating Degree Days	Design Moisture	Daily Temp Range
_____	FL, Gainesville	FL_GAINESVILLE_REGI	2	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	888	7104

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	888	7104	Yes	2	2	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	R-Value	Area		Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	Main	122 ft	0	888 ft²	----	0 1	0.5	0 4

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Metal	936 ft²	148 ft²	Light	0 96	No	0 9	No	0	18 4

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	888 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	30	888 ft²	0.11	Wood

WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
___	1	N	Exterior	Frame - Wood	Main	13	37		8		296 ft²		0.23	0.75	0
___	2	E	Exterior	Frame - Wood	Main	13	24		8		192 ft²		0.23	0.75	0
___	3	S	Exterior	Frame - Wood	Main	13	37		8		296 ft²		0 23	0 75	0
___	4	W	Exterior	Frame - Wood	Main	13	24		8		192 ft²		0.23	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	S	Insulated	Main	None	0 460000	3		6	8	20 ft²
_____	2	W	Wood	Main	None	0.460000	3		6	8	20 ft²

WINDOWS

Orientation shown is the entered, Proposed orientation

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Overhang Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N	1	Metal	Double (Tinted)	Yes	0.55	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	2	N	1	Metal	Double (Tinted)	Yes	0 55	0 5	15 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	3	N	1	Metal	Double (Tinted)	Yes	0.55	0 5	6 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	4	S	3	Metal	Double (Tinted)	Yes	0 55	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	5	S	3	Metal	Double (Tinted)	Yes	0.55	0 5	9 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	6	W	4	Metal	Double (Tinted)	Yes	0 55	0.5	15 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Best Guess	0 000500	1164.61	63.9360	120.241	0.38500	9.83631

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump	Through the Wall(Split)	HSPF. 7 7	18 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit	Split	SEER 14	18 kBtu/hr	540 cfm	0.75	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Main	0 95	50 gal	50 gal	120 deg	Heat Recovery Unit

SOLAR HOT WATER SYSTEM

√	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
_____	None	None			ft²		

DUCTS

√	#	---- Supply ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25	Percent Leakage	QN	RLF	HVAC # Heat	Cool
_____	1	Attic	6	177 6 ft	Attic	44.4 ft²	Default Leakage	Main	(Default)	(Default) %			1	1

TEMPERATURES

Programable Thermostat: None

Ceiling Fans:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cooling	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[X]	[X]	[ ]	[ ]	[ ]
Heating	[X]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]
Venting	[ ]	[ ]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[ ]

Thermostat Schedule: HERS 2006 Reference

Schedule Type		Hours 1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68
Heating (WEH)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68

MECHANICAL VENTILATION

Type	Supply CFM	Exhaust CFM	Fan Watts	HRV	Heating System	Run Time	Cooling System
None	0	0	0		1 - Electric Heat Pump	0%	1 - Central Unit

FORM 405-10

Florida Code Compliance Checklist

Florida Department of Business and Professional Regulations
Residential Whole Building Performance Method

ADDRESS: 4277 CR 252 PERMIT #:
Lake City, FL, 32025-

MANDATORY REQUIREMENTS SUMMARY - See individual code sections for full details.

COMPONENT	SECTION	SUMMARY OF REQUIREMENT(S)	CHECK
Air leakage	402.4	To be caulked, gasketed, weatherstripped or otherwise sealed. Recessed lighting IC-rated as meeting ASTM E 283. Windows and doors = 0.30 cfm/sq.ft. Testing or visual inspection required. Fireplaces· gasketed doors & outdoor combustion air Must complete envelope leakage report or visually verify Table 402 4 2	
Thermostat & controls	403.1	At least one thermostat shall be provided for each separate heating and cooling system. Where forced-air furnace is primary system, programmable thermostat is required Heat pumps with supplemental electric heat must prevent supplemental heat when compressor can meet the load	
Ducts	403 2 2 403 3 3	All ducts, air handlers, filter boxes and building cavities which 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 503.2 7.2 of this code. Building framing cavities shall not be used as supply ducts.	
Water heaters	403 4	Heat trap required for vertical pipe risers Comply with efficiencies in Table 403.4 3 2 Provide switch or clearly marked circuit breaker (electric) or shutoff (gas) Circulating system pipes insulated to = R-2 + accessible manual OFF switch.	
Mechanical ventilation	403 5	Homes designed to operate at positive pressure or with mechanical ventilation systems shall not exceed the minimum ASHRAE 62 level. No make-up air from attics, crawlspaces, garages or outdoors adjacent to pools or spas.	
Swimming Pools & Spas	403.9	Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. Spas and heated pools must have vapor-retardant covers or a liquid cover or other means proven to reduce heat loss except if 70% of heat from site-recovered energy Off/timer switch required. Gas heaters minimum thermal efficiency=78% (82% after 4/16/13). Heat pump pool heaters minimum COP= 4.0.	
Cooling/heating equipment	403.6	Sizing calculation performed & attached Minimum efficiencies per Tables 503.2 3. Equipment efficiency verification required. Special occasion cooling or heating capacity requires separate system or variable capacity system Electric heat >10kW must be divided into two or more stages.	
Ceilings/knee walls	405.2 1	R-19 space permitting	

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 77

The lower the EnergyPerformance Index, the more efficient the home.

4277 CR 252, Lake City, FL, 32025-

1	New construction or existing	New (From Plans)
2.	Single family or multiple family	Single-family
3	Number of units, if multiple family	1
4	Number of Bedrooms	2
5	Is this a worst case?	No
6	Conditioned floor area (ft²)	888

7	Windows**	Description	Area
	a U-Factor: SHGC:	Dbl, U=0 55 SHGC=0.50	105 00 ft²
	b. U-Factor SHGC·	N/A	ft²
	c U-Factor: SHGC·	N/A	ft²
	d U-Factor: SHGC	N/A	ft²
	Area Weighted Average Overhang Depth·		1.500 ft.
	Area Weighted Average SHGC		0.500

8	Floor Types	Insulation	Area
	a Slab-On-Grade Edge Insulation	R=0.0	888 00 ft²
	b. N/A	R=	ft²
	c N/A	R=	ft²

9.	Wall Types	Insulation	Area
	a. Frame - Wood, Exterior	R=13 0	976.00 ft²
	b. N/A	R=	ft²
	c N/A	R=	ft²
	d. N/A	R=	ft²

10.	Ceiling Types	Insulation	Area
	a Under Attic (Vented)	R=30.0	888 00 ft²
	b N/A	R=	ft²
	c. N/A	R=	ft²

11	Ducts	R	ft²
	a Sup: Attic, Ret· Attic, AH: Main	6	177.6

12	Cooling systems	kBtu/hr	Efficiency
	a Central Unit	18 0	SEER.14 00

13	Heating systems	kBtu/hr	Efficiency
	a. Electric Heat Pump	18.0	HSPF 7.70

14	Hot water systems	
	a. Electric	Cap· 50 gallons EF· 0.95
	b. Conservation features Heat Recovery Unit	
15	Credits	None

I certify that this home has complied with the Florida Energy Efficiency Code for Building Construction 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. _____ City/FL Zip. _____

*Note This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida EnergyGauge Rating. Contact the EnergyGauge Hotline at (321) 638-1492 or see the EnergyGauge web site at energygauge com for information and a list of certified Raters. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

**Label required by Section 303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

Residential System Sizing Calculation

Summary

Elizabeth Williamson
4277 CR 252
Lake City, FL 32025-

Project Title:
Elizabeth Williamson Residence

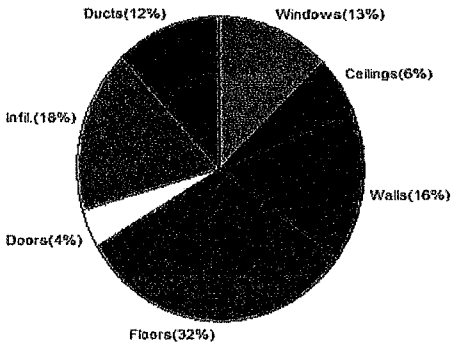
10/27/2013

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(54gr.)					
Winter design temperature(MJ8 99%)	33	F	Summer design temperature(MJ8 99%)	92	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	17	F
Total heating load calculation	**16844**	**Btuh**	**Total cooling load calculation**	**17559**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	106 9	18000	Sensible (SHR = 0 75)	110 4	13500
Heat Pump + Auxiliary(0.0kW)	106.9	18000	Latent	84 5	4500
			Total (Electric Heat Pump)	102 5	18000

WINTER CALCULATIONS

Winter Heating Load (for 888 sqft)

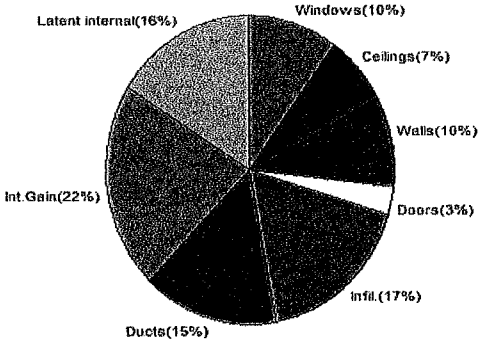
Load component			Load	
Window total	105	sqft	2137	Btuh
Wall total	831	sqft	2729	Btuh
Door total	40	sqft	681	Btuh
Ceiling total	888	sqft	1046	Btuh
Floor total	888	sqft	5327	Btuh
Infiltration	73	cfm	2954	Btuh
Duct loss			1970	Btuh
Subtotal			**16844**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**16844**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 888 sqft)

Load component			Load	
Window total	105	sqft	1790	Btuh
Wall total	831	sqft	1733	Btuh
Door total	40	sqft	515	Btuh
Ceiling total	888	sqft	1188	Btuh
Floor total			0	Btuh
Infiltration	55	cfm	1018	Btuh
Internal gain			3860	Btuh
Duct gain			2127	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**12232**	**Btuh**
Latent gain(ducts)			528	Btuh
Latent gain(infiltration)			1999	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2800	Btuh
Total latent gain			**5327**	**Btuh**
TOTAL HEAT GAIN			**17559**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY· _____
DATE. _____