FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name	Lot 8 Mayfair Subdivision	Builder Name:	Trent Giebeig
Street.		Permit Office·	Columbia County
City, State, Zip	Lake City , FL , 32055-	Permit Number·	
Owner:	TBA	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		3	
5	Is this a worst case?		No	
6	Conditioned floor area above grade (ft²)		1608	
	Conditioned floor area below grade (ft²)		0	
7	Windows (183.0 sqft.)	Description		Area
	a. U-Factor·	Dbl, U=0.55		123 00 ft²
	SHGC	SHGC=0 50		
	b U-Factor·	Dbl, U=0.55		30 00 ft²
	SHGC	SHGC=0 50		
	c. U-Factor·	Dbl, U=0 87		30 00 ft²
	SHGC.	SHGC=0 50		
	d U-Factor·	N/A		ft²
	SHGC			
	Area Weighted Average Overhang Depth			3 904 ft
	Area Weighted Average SHGC			0 500
8	Floor Types (1608.0 sqft.)		Insulation	Area
	a Slab-On-Grade Edge Insulation		R=0 0	1608 00 ft²
	b N/A		R=	ft²
	c N/A		R=	ft²

9.	Wall Types (1433.8 sqft.)	Insulation	Area
	a. Face Brick - Wood, Exterior	R=13 0	852 44 ft²
	b. Frame - Wood, Exterior	R=13 0	421 33 ft²
	c. Frame - Wood, Adjacent	R=13 0	160 00 ft²
	d N/A	R=	ft²
10.	Ceiling Types (1680 0 sqft.)	Insulation	Area
	a. Under Attic (Vented)	R=30 0	1620 00 ft²
	b. Knee Wall (Vented)	R=19 0	60 00 ft²
	c N/A	R=	ft²
11.	Ducts		R ft²
	a. Sup Attic, Ret: Attic, AH· Main		6 345.2
12.	Cooling systems	kBtu/hr	Efficiency
	a. Central Unit	30 0	SEER 14.00
13	Heating systems	kBtu/hr	Efficiency
	a. Electric Heat Pump	30 0	HSPF 8 40
14	Hot water systems		
	a. Electric		Cap 50 gallons
			EF· 0 920
	b Conservation features		
	Heat Recovery Unit		
15	Credits		Pstat

Glass/Floor Area: 0.114

Total Proposed Modified Loads: 28.40

Total Standard Reference Loads: 36.61

PASS

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

PREPARED BY: William H Fiano

DATE: 12/17/13

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.

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

BUILDING OFFICIAL: _____

DATE: _____

- **Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with 403.2.2.1.1.**
- **Compliance requires completion of a Florida Air Barrier and Insulation Inspection Checklist**

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

PROJECT

Title	Lot 8 Mayfair Subdivision	Bedrooms	3	Address Type	Lot Information
Building Type:	User	Conditioned Area:	1608	Lot #	8
Owner	TBA	Total Stories	1	Block/SubDivision	Mayfair phase 3
# of Units	1	Worst Case:	No	PlatBook:	
Builder Name	Trent Giebelg	Rotate Angle:	0	Street:	
Permit Office.	Columbia County	Cross Ventilation		County	Columbia
Jurisdiction		Whole House Fan		City, State, Zip.	Lake City , FL , 32055-
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	1608	12864

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	1608	12864	Yes	1	3	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	R-Value	Area		Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulation	Main	186 ft	0	1608 ft²	----	0 1	0 4	0 5

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor	SA Tested	Emitt	Emitt Tested	Deck Insul	Pitch (deg)
_____	1	Hip	Composition shingles	1798 ft²	0 ft²	Medium	0 96	No	0 9	No	0	26 6

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	1608 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	30	1620 ft²	0 11	Wood
_____	2	Knee Wall (Vented)	Main	19	60 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	Face Brick - Wood	Main	13	30	1	8		240 6666	0	0 23	0 75	0
____	2	E	Exterior	Frame - Wood	Main	13	52	8	8		421 3333	0	0 23	0 75	0
____	3	S	Exterior	Face Brick - Wood	Main	13	30	1	8		240 6666	0	0.23	0 75	0
____	4	W	Exterior	Face Brick - Wood	Main	13	12	9	8		102 ft²	0	0 23	0 75	0
____	5	N	Exterior	Face Brick - Wood	Main	13	4	8	9	4	43 55555	0	0 23	0 75	0
____	6	W	Exterior	Face Brick - Wood	Main	13	7	9	9	4	72 33333	0	0 23	0 75	0
____	7	S	Exterior	Face Brick - Wood	Main	13	4	8	9	4	43 55555	0	0 23	0 75	0
____	8	E	Exterior	Face Brick - Wood	Main	13	11	9	9	4	109 6666	0	0 23	0 75	0
____	9	E	Garage	Frame - Wood	Main	13	20		8		160 ft²		0 23	0 75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	W	Insulated	Main	None	0.460000	4	1	6	8	27 22222
_____	2	E	Wood	Main	None	0 460000	4	1	6	8	16 66666

WINDOWS

Orientation shown is the entered, Proposed orientation

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N	1	Metal	Double (Clear)	Yes	0.55	0 5	8 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	2	N	1	Metal	Double (Clear)	Yes	0 55	0 5	5 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	3	E	2	Metal	Double (Clear)	Yes	0 55	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	4	E	2	Metal	Double (Clear)	Yes	0 55	0 5	40 ft²	12 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	5	E	2	Metal	Double (Clear)	Yes	0 55	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	6	E	2	Metal	Double (Clear)	Yes	0 55	0 5	10 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	7	W	4	Metal	Double (Tinted)	Yes	0 55	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None
_____	8	E	8	Metal	Double (Tinted)	Yes	0 87	0 5	30 ft²	1 ft 6 in	1 ft 0 in	Drapes/blinds	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg Wall Height	Exposed Wall Insulation
_____	1	400 ft²	400 ft²	60 ft	8 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Best Guess	0 000500	2108 90	115 776	217 733	0 38500	9 83630

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump	None	HSPF, 8 4	30 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit	Split	SEER 14	30 kBtu/hr	900 cfm	0 75	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Garage	0 92	50 gal	60 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	345 2 ft²	Attic	86.3 ft²	Default Leakage	Main	(Default) c	(Default) %			1	1

TEMPERATURES

Programable Thermostat: Y 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	80	80	80	80
	PM	80	80	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	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66
Heating (WEH)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66

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:	PERMIT #:
Lake City, FL, 32055-	

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.	NA
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.	✓

Residential System Sizing Calculation

Summary

TBA

Project Title:
Lot 8 Mayfair Subdivision

Lake City, FL 32055-

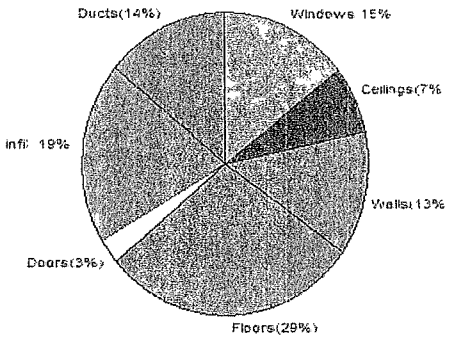
12/17/2013

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	**27975**	**Btuh**	**Total cooling load calculation**	**28186**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	107.2	30000	Sensible (SHR = 0 75)	112 8	22500
Heat Pump + Auxiliary(0 0kW)	107 2	30000	Latent	91 1	7500
			Total (Electric Heat Pump)	106 4	30000

WINTER CALCULATIONS

Winter Heating Load (for 1608 sqft)

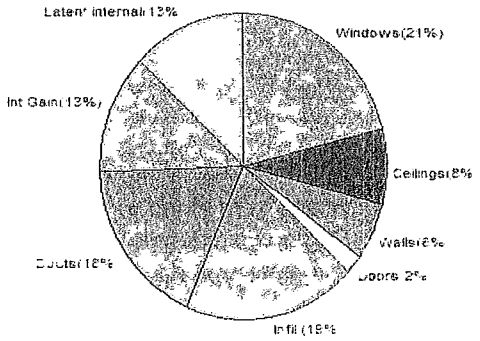
Load component			Load	
Window total	183	sqft	4079	Btuh
Wall total	1207	sqft	3718	Btuh
Door total	44	sqft	747	Btuh
Ceiling total	1680	sqft	2018	Btuh
Floor total	1608	sqft	8121	Btuh
Infiltration	132	cfm	5350	Btuh
Duct loss			3942	Btuh
Subtotal			**27975**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**27975**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1608 sqft)

Load component			Load	
Window total	183	sqft	5929	Btuh
Wall total	1207	sqft	1712	Btuh
Door total	44	sqft	565	Btuh
Ceiling total	1680	sqft	2290	Btuh
Floor total			0	Btuh
Infiltration	99	cfm	1843	Btuh
Internal gain			3630	Btuh
Duct gain			3984	Btuh
Sens Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**19954**	**Btuh**
Latent gain(ducts)			1012	Btuh
Latent gain(infiltration)			3620	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			3600	Btuh
Total latent gain			**8232**	**Btuh**
TOTAL HEAT GAIN			**28186**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY William H. Green
DATE: 12/17/13

TABLE 402.4.2

AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name	Lot 8 Mayfair Subdivision	Builder Name.	Trent Giebeig
Street·		Permit Office·	Columbia County
City, State, Zip	Lake City , FL , 32055-	Permit Number·	
Owner.	TBA	Jurisdiction	
Design Location	FL, Gainesville		

COMPONENT	CRITERIA	CHECK
Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material. Air-permeable insulation is inside of an air barrier.	✓
Ceiling/attic	Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed. Attic access (except unvented attic), knee wall door, or drop down stair is sealed.	✓
Walls	Corners and headers are insulated. Junction of foundation and sill plate is sealed.	✓
Windows and doors	Space between window/door jambs and framing is sealed.	✓
Rim joists	Rim joists are insulated and include an air barrier.	N/A
Floors (including above-garage and cantilevered floors)	Insulation is installed to maintain permanent contact with underside of subfloor decking.	✓
Crawl space walls	Insulation is permanently attached to walls. Exposed earth in unvented crawl spaces is covered with Class I	N/A
Shafts, penetrations	Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.	✓
Narrow cavities	Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.	✓
Garage separation	Air sealing is provided between the garage and conditioned spaces.	✓
Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. Exception—fixtures in conditioned space.	✓
Plumbing and wiring	Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation	✓
Shower/tub on exterior wall	Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.	✓
Electrical/phone box on	Air barrier extends behind boxes or air sealed-type boxes are installed.	✓
Common wall	Air barrier is installed in common wall between dwelling units.	✓
HVAC register boots	HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.	✓
Fireplace	Fireplace walls include an air barrier.	N/A