

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

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

Applications for compliance with the 2014 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 (1 page) and an input summary checklist that can be used for field verification (usually 4 pages/may be greater)
- Energy Performance Level (EPL) Display Card (one page)
- Mandatory Requirements(three pages)

Required prior to CO for the Performance Method:

- Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1)(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)



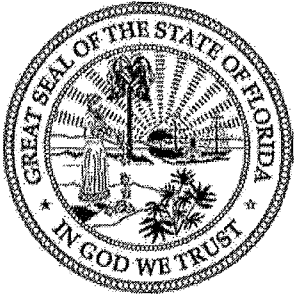
FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name 160164 Street 152 SW Mandiba Dr City, State, Zip Lake City , FL , 32024 Owner Barritt, Tom & Beth Design Location FL, Gainesville	Builder Name Blake Construction Permit Office Permit Number Jurisdiction
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Glass/Floor Area: 0.122	Total Proposed Modified Loads: 21.30	PASS
	Total Baseline Loads: 21.65	

<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: <u>Evan Beamsley</u></p> <p>DATE: <u>2016-03-22</u></p> <p>I hereby certify that this building, as designed, is in compliance with the Florida Energy Code</p> <p>OWNER/AGENT: _____</p> <p>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: _____</p> <p>DATE: _____</p>
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- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.2.2.1.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and an envelope leakage test report in accordance with R402.4.1.2.

PROJECT												
Title	160164	Bedrooms	1	Address Type	Street Address							
Building Type	User	Conditioned Area	600	Lot #								
Owner	Barritt, Tom & Beth	Total Stories	1	Block/SubDivision								
# of Units	1	Worst Case	No	PlatBook								
Builder Name	Blake Construction	Rotate Angle	0	Street	152 SW Mandiba Dr							
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												
<input checked="" type="checkbox"/>	Design Location	TMY Site	IECC Zone	Design Temp 97.5 %	2.5 %	Int Design Temp Winter	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	600	4800								
SPACES												
	Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated	
	1	Main	600	4800	Yes	2	1	1	Yes	Yes	Yes	
FLOORS												
<input checked="" type="checkbox"/>	#	Floor Type	Space	Perimeter	R-Value	Area		Tile	Wood	Carpet		
_____	1	Slab-On-Grade Edge Insulatio	Main	100 ft	0	600 ft²	----	0.3	0.3	0.4		
ROOF												
<input checked="" type="checkbox"/>	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor	SA Tested	Emitt Tested	Emitt Tested	Deck Insul	Pitch (deg)
_____	1	Gable or shed	Composition shingles	781 ft²	250 ft²	Dark	0.92	No	0.9	No	0	39.8
ATTIC												
<input checked="" type="checkbox"/>	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC					
_____	1	Full attic	Vented	300	600 ft²	N	N					
CEILING												
<input checked="" type="checkbox"/>	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type					
_____	1	Under Attic (Vented)	Main	30	650 ft²	0.11	Wood					

WALLS														
✓ #	Ornt	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	Exterior	Frame - Wood	Main	13	30		8		240 0 ft²		0 23	0 75	0
2	E	Exterior	Frame - Wood	Main	13	20		8		160 0 ft²		0 23	0 75	0
3	S	Exterior	Frame - Wood	Main	13	30		8		240 0 ft²		0 23	0 75	0
4	W	Garage	Frame - Wood	Main	13	20		8		160 0 ft²		0 23	0 75	0

DOORS											
✓ #	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area	
1	N	Insulated	Main	None	4	2		6	8	13 3 ft²	
2	S	Insulated	Main	None	4	3		6	8	20 ft²	

WINDOWS													
Orientation shown is the entered, Proposed orientation													
✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Area	Overhang Depth	Separation	Int Shade	Screening	
1	N	1	Metal	Low-E Double	Yes	0 35	0 35	9 0 ft²	7 ft 6 in	1 ft 0 in	None	None	
2	N	1	Metal	Low-E Double	Yes	0 35	0 35	4 0 ft²	7 ft 6 in	1 ft 0 in	None	None	
3	E	2	Metal	Low-E Double	Yes	0 35	0 35	15 0 ft²	1 ft 6 in	4 ft 0 in	None	None	
4	S	3	Metal	Low-E Double	Yes	0 35	0 35	45 0 ft²	7 ft 6 in	1 ft 0 in	None	None	

GARAGE						
✓ #	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg Wall Height	Exposed Wall Insulation	
1	472 ft²	384 ft²	46 7 ft	8 ft	1	

INFILTRATION								
#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	000254	400	21 96	41 3	1957	5

HEATING SYSTEM							
✓ #	System Type	Subtype	Efficiency	Capacity	Block	Ducts	
1	Window/Wall Heat Pump	None	HSPF 7 8	12 kBtu/hr	1	Ductless	

COOLING SYSTEM								
✓ #	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
1	PTAC and Room Unit	None	EER 14	12 kBtu/hr	360 cfm	0 85	1	Ductless

HOT WATER SYSTEM

<input checked="" type="checkbox"/>	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
	1	Electric	Tankless	Exterior	0.95	1 gal	40 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
	None	None			ft ²		

TEMPERATURES

Programable Thermostat Y		Ceiling Fans											
Cooling	<input checked="" type="checkbox"/> Jan	<input 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 type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input 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	78	78	78	78	78	78	78	78	78	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

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 98

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

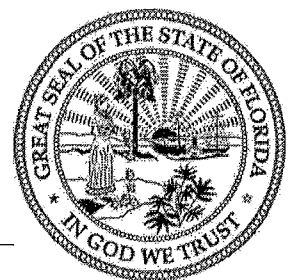
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<p>7 Windows** a U-Factor SHGC b U-Factor SHGC c U-Factor SHGC d U-Factor SHGC Area Weighted Average Overhang Depth Area Weighted Average SHGC</p>	<table border="0" style="width: 100%;"> <tr> <th style="text-align: left;">Description</th> <th style="text-align: left;">Area</th> </tr> <tr> <td>U=0 35 SHGC=0 35</td> <td>73 00 ft²</td> </tr> <tr> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>6 267 ft</td> <td></td> </tr> <tr> <td>0 350</td> <td></td> </tr> </table>	Description	Area	U=0 35 SHGC=0 35	73 00 ft ²	N/A	ft ²	N/A	ft ²	N/A	ft ²	6 267 ft		0 350		<p>12 Cooling systems a PTAC and Room Unit 13 Heating systems a Window/Wall Heat Pump 14 Hot water systems a Electric b Conservation features None 15 Credits</p>	<p>kBtu/hr Efficiency 12 0 EER 14 00 kBtu/hr Efficiency 12 0 HSPF 7 80 Cap 1 gallons EF 0 95 Pstat</p>
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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 R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

Florida Department of Business and Professional Regulations Residential Whole Building Performance and Prescriptive Methods

ADDRESS

152 SW Mandiba Dr
Lake City, FL, 32024

Permit Number:

MANDATORY REQUIREMENTS See individual code sections for full details.

- ? **401.3 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 compliance for the building. A copy of the EPL display card can be found in Appendix C.
- ? **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.1 through R402.4.4.
- ? **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 of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the code official, testing shall be conducted by 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, 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; and
 - 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 and outdoor combustion air.
- ? **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.
- ? **R402.4.4 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 E 283 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.
- ? **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.
- ? **R403.2.2 Sealing (Mandatory)** All ducts, air handlers, and filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts and plenum chambers, shall be constructed and sealed in accordance with Section C403.2.7.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria by post-construction or rough-in testing below.
- Duct tightness shall be verified by testing to Section 803 of the RESNET Standards by either an energy rater certified in accordance with Section 553.99, Florida Statutes, or as authorized by Florida Statutes, to be "substantially leak free" by either of the following:
- 1 Post-construction test. Total leakage shall be less than or equal to 4 cfm (113 L/min) per 100 square feet (9.29 m²) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.
 - 2 Rough-in test. Total leakage shall be less than or equal to 4 cfm (113 L/min) per 100 square feet (9.29 m²) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29 m²) of conditioned floor area.
- Exceptions
- 1 The total leakage test is not required for ducts and air handlers located entirely within the building envelope.
 - 2 Duct testing is not mandatory for buildings complying by Section R405 of this code.

MANDATORY REQUIREMENTS - (Continued)

- ? **R403.2.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193
- ? **R403.2.3 Building Cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums
- ? **R403.3 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 ,
- ? **R403.3.1 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
- ? **R403.4.1 Circulating hot water systems (Mandatory).** Circulating hot water systems shall be provided with an automatic or readily accessible manual switch that can turn off the hot-water circulating pump when the system is not in use
- ? **R403.4.3 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
- ? **R403.4.4 Water heater efficiencies (Mandatory).** Water heater efficiencies
- ? **R403.4.4.1 Storage water heater temperature controls**
- **R403.4.4.1.1 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)
 - **R403.4.4.1.2 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
- ? **R403.4.4.2 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 Section R403.4.4.2.1
- **R403.4.4.2.1 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
- ? **R403.5 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. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating
- ? **R403.5.1 Whole-house mechanical ventilation system fan efficacy.** Mechanical ventilation system fans shall meet the efficacy requirements of Table R403.5.1
- Exception:** Where mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor
- ? **R403.5.2 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, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications
 - 2 No ventilation or air-conditioned system make air shall be provided to conditioned space from attics, crawlspaces, attached closed garages or outdoor spaces adjacent to swimming pools or spas
 - 3 If ventilation air is drawn from enclosed spaces(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
- ? **R403.6 Heating and cooling equipment (Mandatory).** The following sections are mandatory for cooling and heating equipment
- ? **R403.6.1 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 which affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems
- **R403.6.1.1 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 403.6, 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

MANDATORY REQUIREMENTS - (Continued)

- ? **R403.6.1.1 Cooling equipment capacity. (continued)** 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 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 temperature 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 multi-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 multi-family units, the capacity of equipment may be sized in accordance with good design practice.

- ? **R403.6.1.2 Heating equipment capacity**

- **R403.6.1.2.1 Heat pumps.** Heat pumps sizing shall be based on the cooling requirements as calculated according to Section R403.6.1.1 and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load.
- **R403.6.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.6.1.
- **R403.6.1.2.3 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 R403.6.1.

- ? **R403.6.1.3 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.

- ? **R403.7 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the Commercial Provisions in lieu of Section R403.

- ? **R403.8 Snow melt 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 55°F, and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F.

- ? **R403.9 Swimming pools, inground spas and portable spas (Mandatory).** The energy requirements for residential pools and inground spas shall be as specified in Sections R403.9.1 through R403.9.3 and in accordance with ANSI/APSP-15. The energy requirements for portable spas shall be in accordance with ANSI/APSP-14.

- ? **R403.9.1 Pool and spa heaters.** All pool heaters shall be equipped with a readily accessible on-off switch that is mounted outside the heater to allow shutting off the heater without adjusting the thermostat setting.

- **R403.9.1.1 Gas and oil-fired pool and spa heaters.** All gas- and oil-fired pool and space 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 gas or LP gas shall not have continuously burning pilot lights.
- **R403.9.1.2 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.

- ? **R403.9.2 Time switches.** Time switches or other control method that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on all heaters and pumps. Heaters, pumps and motors that have built in timers shall be deemed in compliance with this equipment.

Exceptions:

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

- ? **R403.9.3 Covers.** Heated swimming pools and inground permanently installed 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:** Outdoor pools deriving over 70 percent of the energy for heating from site-recovered energy, such as a heat pump or solar energy source computed over an operating season.

- ? **RR404.1 Lighting equipment (Mandatory).** A minimum of 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or a minimum of 75 percent of permanently installed lighting fixtures shall contain only high efficacy lamps.

Exception: Low-voltage lighting shall not be required to utilize high-efficacy lamps.

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

- ? **R405.2 Performance ONLY.** All ducts not entirely inside the building thermal envelope shall be insulated to a minimum of R-6.

- ? **R405.2.1 Performance ONLY.** Ceilings shall have minimum insulation of R-19. Where single assembly of the exposed deck and beam type or concrete deck roofs do not have sufficient space, R-10 is allowed.

TABLE 402.4.1.1

AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name	160164	Builder Name	Blake Construction
Street	152 SW Mandiba Dr	Permit Office	
City, State, Zip	Lake City , FL , 32024	Permit Number	
Owner	Barritt, Tom & Beth	Jurisdiction	
Design Location	FL, Gainesville		

COMPONENT	CRITERIA	CHECK
Air barrier and thermal barrier	A continuous air barrier shall be installed in the building envelope. Exterior thermal envelope contains a continuous 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	
Walls	Corners and headers shall be insulated and the junction of the foundation and sill plate shall be sealed The junction of the top plate and the top or exterior walls shall be sealed Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.	
Windows, skylights and doors	The space between window/door jambs and framing and skylights and framing shall be sealed	
Rim joists	Rim joists are insulated and include an air barrier.	
Floors (including above-garage and cantilevered floors)	Insulation shall be installed to maintain permanent contact with underside of subfloor decking. The air barrier shall be installed at any exposed edge of insulation.	
Crawl space walls	Where provided in lieu of floor insulation, insulation shall be permanently attached to the crawlspace walls. Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped	
Shafts, penetrations	Duct shafts, utility penetrations, and flue shaft openings 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 air tight, IC rated, and sealed to the drywall.	
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	Exterior walls adjacent to showers and tubs shall be insulated and the air barrier installed separating them from the showers and tubs.	
Electrical/phone box on	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.	
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors	

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Envelope Leakage Test Report Prescriptive and Performance Method

Project Name	160164	Builder Name	Blake Construction
Street	152 SW Mandiba Dr	Permit Office	
City, State, Zip	Lake City , FL , 32024	Permit Number	
Design Location	FL, Gainesville	Jurisdiction	

Envelope Leakage Test Results

Regression Data:

C: _____ n: _____ R: _____

Single or Multi Point Test Data

	HOUSE PRESSURE	FLOW:
1	Pa	cfm
2	Pa	cfm
3	Pa	cfm
4	Pa	cfm
5	Pa	cfm
6	Pa	cfm

Leakage Characteristics

CFM(50): _____

ELA: _____

EqLA: _____

ACH: _____

ACH(50): _____

SLA: _____

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, 3 air changes per hour in Climate Zones 3 through 8. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the code official, testing shall be conducted by 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, 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; and
- 6 Supply and return registers, if installed at the time of the test, shall be fully open

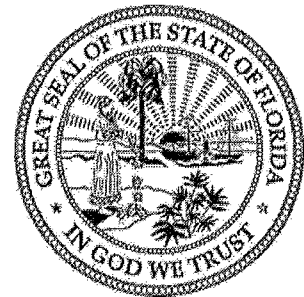
I hereby certify that the above envelope leakage performance results demonstrate compliance with Florida Energy Code requirements in accordance with Section R402.4.1.2.

SIGNATURE: _____

PRINTED NAME: _____

DATE: _____

Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the third party conducting the test and provided to the code official.



BUILDING OFFICIAL: _____

DATE: _____

Residential System Sizing Calculation

Summary

Barritt, Tom & Beth
152 SW Mandiba Dr.
Lake City, FL 32024

Project Title
160164

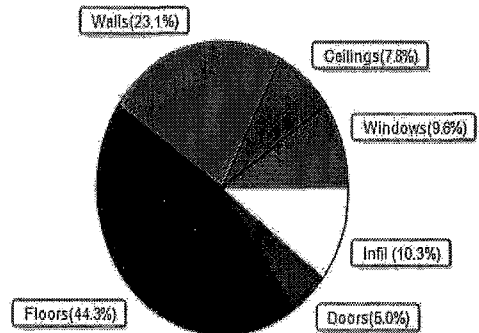
3/22/2016

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	10663 Btuh	Total cooling load calculation	7618 Btuh		
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh		
Total (Window/Wall Heat Pump)	112.5 12000	Sensible (SHR = 0.85)	155.3 10200		
Heat Pump + Auxiliary(0.0kW)	112.5 12000	Latent	171.7 1800		
		Total (Window/Wall Heat Pump)	157.5 12000		

WINTER CALCULATIONS

Winter Heating Load (for 600 sqft)

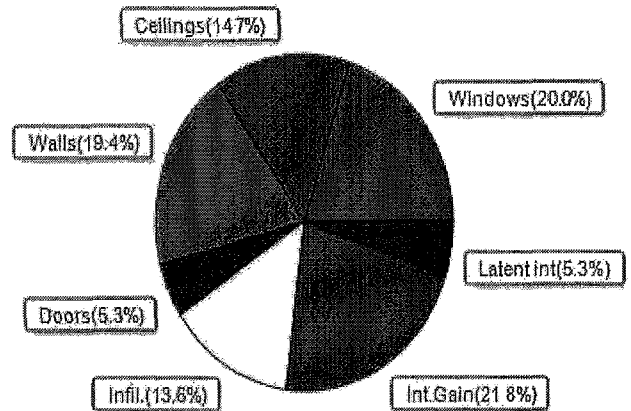
Load component	Load	
Window total	73 sqft	1022 Btuh
Wall total	694 sqft	2463 Btuh
Door total	33 sqft	533 Btuh
Ceiling total	650 sqft	828 Btuh
Floor total	600 sqft	4720 Btuh
Infiltration	25 cfm	1097 Btuh
Duct loss		0 Btuh
Subtotal		10663 Btuh
Ventilation	0 cfm	0 Btuh
TOTAL HEAT LOSS		10663 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 600 sqft)

Load component	Load	
Window total	73 sqft	1523 Btuh
Wall total	694 sqft	1478 Btuh
Door total	33 sqft	400 Btuh
Ceiling total	650 sqft	1118 Btuh
Floor total		0 Btuh
Infiltration	19 cfm	391 Btuh
Internal gain		1660 Btuh
Duct gain		0 Btuh
Sens. Ventilation	0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		6570 Btuh
Latent gain(ducts)		0 Btuh
Latent gain(infiltration)		648 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		400 Btuh
Total latent gain		1048 Btuh
TOTAL HEAT GAIN		7618 Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY Evan Beamsley
DATE 2016-03-22

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Barritt, Tom & Beth
 152 SW Mandiba Dr.
 Lake City, FL 32024

Project Title
 160164
 Building Type User

3/22/2016

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 0.35	Metal	0.35	N	9.0	14.0	126 Btuh
2	2, NFRC 0.35	Metal	0.35	N	4.0	14.0	56 Btuh
3	2, NFRC 0.35	Metal	0.35	E	15.0	14.0	210 Btuh
4	2, NFRC 0.35	Metal	0.35	S	45.0	14.0	630 Btuh
	Window Total					73.0(sqft)	1022 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM= Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	214	3.55	759 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	145	3.55	515 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	175	3.55	621 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	160	3.55	568 Btuh
	Wall Total					694(sqft)	2463 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM= Load
1	Insulated - Exterior, n		(0.400)		13	16.0	213 Btuh
2	Insulated - Exterior, n		(0.400)		20	16.0	320 Btuh
	Door Total					33(sqft)	533 Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM= Load
1	Vented Attic/D/Shing		(0.032)	30.0/0.0	650	1.3	828 Btuh
	Ceiling Total					650(sqft)	828 Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM= Load
1	Slab On Grade		(1.180)	0.0	100.0 ft(perim)	47.2	4720 Btuh
	Floor Total					600 sqft	4720 Btuh
Envelope Subtotal							9566 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural		0.31	4800	1.00	25.1	1097 Btuh
Duct load	NA, R0.0, Supply(), Return()					(DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones						10663 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Barritt, Tom & Beth
 152 SW Mandiba Dr.
 Lake City, FL 32024

Project Title.
 160164
 Building Type User

3/22/2016

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	10663 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	10663 Btuh

EQUIPMENT

1. Window/Wall Heat Pump	#	12000 Btuh
--------------------------	---	------------

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

Barritt, Tom & Beth
152 SW Mandiba Dr.
Lake City, FL 32024

Project Title
160164

3/22/2016

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	0.35	0.35	No	No	N	7.5ft.	1.0ft	9.0	0.0	9.0	14	14	126 Btuh	
2	2 NFRC	0.35	0.35	No	No	N	7.5ft.	1.0ft	4.0	0.0	4.0	14	14	56 Btuh	
3	2 NFRC	0.35	0.35	No	No	E	1.5ft.	4.0ft	15.0	0.0	15.0	14	40	606 Btuh	
4	2 NFRC	0.35	0.35	No	No	S	7.5ft.	1.0ft	45.0	45.0	0.0	14	17	631 Btuh	
	Excursion														105 Btuh
	Window Total								73 (sqft)						1523 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext	0.09	13.0/0.0			213.7		2.3			484 Btuh				
2	Frame - Wood - Ext	0.09	13.0/0.0			145.0		2.3			328 Btuh				
3	Frame - Wood - Ext	0.09	13.0/0.0			175.0		2.3			396 Btuh				
4	Frame - Wood - Adj	0.09	13.0/0.0			160.0		1.7			270 Btuh				
	Wall Total					694 (sqft)					1478 Btuh				
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior	13.3		12.0		160 Btuh									
2	Insulated - Exterior	20.0		12.0		240 Btuh									
	Door Total	33 (sqft)				400 Btuh									
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load									
1	Vented Attic/DarkShingle	0.032	30.0/0.0	650.0	1.72	1118 Btuh									
	Ceiling Total			650 (sqft)		1118 Btuh									
Floors	Type	R-Value		Size	HTM	Load									
1	Slab On Grade	0.0		600 (ft-perimeter)	0.0	0 Btuh									
	Floor Total			600.0 (sqft)		0 Btuh									
Envelope Subtotal											4519 Btuh				
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load									
	Natural	0.23	4800	1	18.8	391 Btuh									
Internal gain	Occupants	Btuh/occupant	Appliance	Load											
	2	X 230	+ 1200	1660 Btuh											
Sensible Envelope Load						6570 Btuh									
Duct load	NA, Supply(R0 0=None), Return(R0 0=None) (DGM of 0.000)					0 Btuh									
Sensible Load All Zones						6570 Btuh									

Manual J Summer Calculations

Residential Load - Component Details (continued)

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152 SW Mandiba Dr.
Lake City, FL 32024

Project Title
160164

Climate FL_GAINESVILLE_REGIONAL_A

3/22/2016

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	6570 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	6570 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	6570 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	648 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1048 Btuh
TOTAL GAIN	7618 Btuh	

EQUIPMENT

1 PTAC and Room Unit	#	12000 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(1/2))
 (Ornt - compass orientation)



Version 8