FORM R405-2014

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

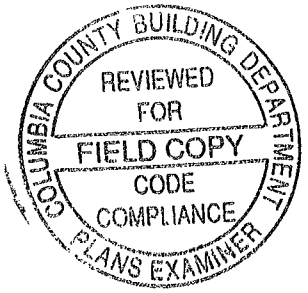
Florida Department of Business and Professional Regulation
Simulated Performance Alternative (Performance) Method

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 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)*



BRISTOL - LOT #100

FORM R405-2014

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name	150650	Builder Name	Aaron Sinque Homes
Street		Permit Office	
City, State, Zip	Lake City , FL ,	Permit Number	
Owner	Bristol Model	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	4			
5 Is this a worst case?	Yes			
6 Conditioned floor area above grade (ft²)	3057			
Conditioned floor area below grade (ft²)	0			
7 Windows(446 8 sqft)	Description		Area	
a U-Factor: SHGC	Dbl, U=0 35 SHGC=0 25		446 83 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			0 250	
8 Floor Types (3057 0 sqft)		Insulation	Area	
a Slab-On-Grade Edge Insulation		R=0 0	2207 00 ft²	
b Floor Over Other Space		R=0 0	850 00 ft²	
c. N/A		R=	ft²	

9 Wall Types (2633 8 sqft.)	Insulation	Area	
a Frame - Wood, Exterior	R=13 0	2294.80 ft²	
b Frame - Wood, Adjacent	R=13 0	339 00 ft²	
c. N/A	R=	ft²	
d N/A	R=	ft²	
10 Ceiling Types (2999 0 sqft)	Insulation	Area	
a Under Attic (Vented)	R=30 0	1357.00 ft²	
b Cathedral/Single Assembly (Vented)	R=30 0	850.00 ft²	
c other (see details)	R=	792 00 ft²	
11 Ducts		R	ft²
a Sup Attic, Ret Attic, AH Main		6	611 4
12 Cooling systems	kBtu/hr	Efficiency	
a. Central Unit	55 0	SEER 15 00	
13 Heating systems	kBtu/hr	Efficiency	
a Electric Heat Pump	55 0	HSPF 8 50	
14 Hot water systems			
a. Electric		Cap 50 gallons EF 0 950	
b Conservation features None			
15 Credits		Pstat	

Glass/Floor Area 0.146

Total Proposed Modified Loads 75.30

Total Baseline Loads 75.48

PASS

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

PREPARED BY Brian Bramblom

DATE 2015-07-03

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 _____

- 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.

- Compliance with a proposed duct leakage Qn requires a Duct Leakage Test Report confirming duct leakage to outdoors, tested in accordance with Section 803 of RESNET Standards, is not greater than 0.030 Qn for whole house.

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PROJECT

Title	150650	Bedrooms	4	Address Type	Lot Information
Building Type	User	Conditioned Area	3057	Lot #	100
Owner	Bristol Model	Total Stories	2	Block/SubDivision	Preserve
# of Units	1	Worst Case	Yes	PlatBook	
Builder Name	Aaron Sinque Homes	Rotate Angle	225	Street	
Permit Office		Cross Ventilation		County	Columbia
Jurisdiction		Whole House Fan		City, State, Zip	Lake City , FL ,
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	3057	28870

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	2207	22070	Yes	6	3	1	Yes	Yes	Yes
2	2nd Floor	850	6800	No	4	1	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	Main	230 ft	0	2207 ft²	----	0 3	0 3	0.4
_____	2	Floor Over Other Space	2nd Floor	-----	-----	850 ft²	0	0 2	0	0 8

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor	SA Tested	Emitt	Emitt Tested	Deck Insul	Pitch (deg)
_____	1	Gable or shed	Composition shingles	2653 ft²	736 ft²	Dark	0 92	No	0.9	No	0	33 7

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	2207 ft²	N	N

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CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	30	1357 ft²	0	Wood
_____	2	Knee Wall (Vented)	2nd Floor	30	792 ft²	0	Wood
_____	3	Cathedral/Single Assembly (Vented)	2nd Floor	30	850 ft²	0	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=>SW	Exterior	Frame - Wood	Main	13	57	8	10		576 7 ft²		0 23	0 75	0
____	2	E=>NW	Exterior	Frame - Wood	Main	13	39	4	10		393 3 ft²		0 23	0 75	0
____	3	S=>NE	Exterior	Frame - Wood	Main	13	35	8	9	6	338 8 ft²		0 23	0 75	0
____	4	W=>SE	Exterior	Frame - Wood	Main	13	59	4	9		534 0 ft²		0 23	0 75	0
____	5	E=>NW	Exterior	Frame - Wood	2nd Floor	13	25	7	8		204.7 ft²		0 23	0 75	0
____	6	S=>NE	Exterior	Frame - Wood	2nd Floor	13	7	4	8		58.7 ft²		0 23	0.75	0
____	7	W=>SE	Exterior	Frame - Wood	2nd Floor	13	23	7	8		188.7 ft²		0.23	0 75	0
____	8	S=>NE	Garage	Frame - Wood	Main	13	37	8	9		339 0 ft²		0.23	0 75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	N=>SW	Insulated	Main	None	4	2		8		16 ft²
_____	2	N=>SW	Insulated	Main	None	4	2		8		16 ft²
_____	3	N=>SW	Insulated	Main	None	4	2		8		16 ft²
_____	4	S=>NE	Insulated	Main	None	4	3		8		24 ft²
_____	5	S=>NE	Insulated	Main	None	4	3		8		24 ft²
_____	6	S=>NE	Insulated	Main	None	.4	5		6	8	33 3 ft²

WINDOWS

Orientation shown is the entered orientation (=>) changed to Worst Case

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N=>SW	1	Metal	Low-E Double	Yes	0.35	0 25	72 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	2	W=>SE	4	Metal	Low-E Double	Yes	0 35	0 25	18 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	3	N=>SW	1	Metal	Low-E Double	Yes	0 35	0 25	96 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	4	E=>NW	2	Metal	Low-E Double	Yes	0 35	0 25	36 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	5	E=>NW	2	Metal	Low-E Double	Yes	0 35	0 25	24 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	6	E=>NW	2	Metal	Low-E Double	Yes	0 35	0 25	6.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	7	S=>NE	3	Metal	Low-E Double	Yes	0 35	0 25	21 3 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	8	S=>NE	3	Metal	Low-E Double	Yes	0 35	0 25	30 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	9	S=>NE	3	Metal	Low-E Double	Yes	0 35	0 25	10 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	10	S=>NE	3	Metal	Low-E Double	Yes	0 35	0 25	36 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	11	W=>SE	4	Metal	Low-E Double	Yes	0 35	0 25	36 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	12	E=>NW	5	Metal	Low-E Double	Yes	0 35	0 25	30 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	13	S=>NE	6	Metal	Low-E Double	Yes	0 35	0 25	18 0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	14	S=>NE	6	Metal	Low-E Double	Yes	0 35	0 25	13 5 ft²	1 ft 6 in	1 ft 0 in	None	None

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GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg Wall Height	Exposed Wall Insulation
____	1	579 7 ft²	384 ft²	67 ft	9 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.0003	2405 8	132 08	248 39	2844	5

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
____	1	Electric Heat Pump	None	HSPF 8 5	55 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
____	1	Central Unit	None	SEER 15	55 kBtu/hr	1650 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	70 gal	120 deg	None

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 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	HVAC # Cool
____	1	Attic	6	611 4 ft	Attic	152 85	Prop Leak Free	Main	--- cfm	91 7 cfm	0 03	0 60	1	1

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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 / Schedule Type	HERS 2006 Reference	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

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ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 100

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

, Lake City, FL,

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	4
5	Is this a worst case?	Yes
6	Conditioned floor area (ft²)	3057

7 Windows**	Description	Area
a U-Factor:	Dbl, U=0 35	446 83 ft²
SHGC	SHGC=0 25	
b U-Factor:	N/A	ft²
SHGC		
c. U-Factor:	N/A	ft²
SHGC		
d U-Factor:	N/A	ft²
SHGC		
Area Weighted Average Overhang Depth		1 500 ft
Area Weighted Average SHGC		0 250

8 Floor Types	Insulation	Area
a Slab-On-Grade Edge Insulation	R=0 0	2207 00 ft²
b Floor Over Other Space	R=0 0	850 00 ft²
c. N/A	R=	ft²

9. Wall Types	Insulation	Area
a Frame - Wood, Exterior	R=13 0	2294 80 ft²
b. Frame - Wood, Adjacent	R=13 0	339 00 ft²
c N/A	R=	ft²
d N/A	R=	ft²

10 Ceiling Types	Insulation	Area
a Under Attic (Vented)	R=30 0	1357 00 ft²
b Cathedral/Single Assembly (Vented)	R=30 0	850.00 ft²
c. other (see details)	R=	792.00 ft²

11 Ducts	R	ft²
a Sup Attic, Ret Attic, AH Main	6	611.4

12. Cooling systems	kBtu/hr	Efficiency
a Central Unit	55 0	SEER 15 00

13 Heating systems	kBtu/hr	Efficiency
a Electric Heat Pump	55 0	HSPF 8 50

14 Hot water systems	
a Electric	Cap 50 gallons
	EF 0 95
b Conservation features	
None	
15 Credits	Pstat

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.

FORM R405-2014

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

ADDRESS	Permit Number
Lake City , FL ,	

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 Statues] 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 402.4 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 (25Pa) 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

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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 met 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 or 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 Manufacture'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 assemby of the exposed deck and beam type or concrete deck roofs do not have sufficent space, R-10 is allowed

FORM R405-2014

TABLE 402.4.1.1

AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name	150650	Builder Name	Aaron Sinque Homes
Street		Permit Office	
City, State, Zip	Lake City , FL ,	Permit Number	
Owner	Bristol Model	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	150650	Builder Name	Aaron Sinque Homes
Street		Permit Office	
City, State, Zip	Lake City , FL ,	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

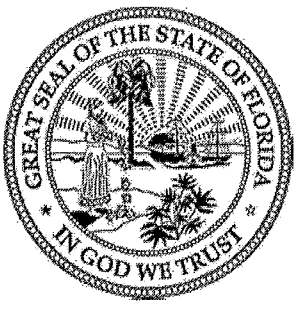
I hereby certify that the above envelope leakage performance results demonstrate compliance with Florida Energy Code requirements in accordance with Section R402.4.1.2.

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: _____

FORM R405-2014

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Form R405 Duct Leakage Test Report

Performance Method

Project Name	150650	Builder Name	Aaron Sinque Homes
Street		Permit Office	
City, State, Zip	Lake City , FL ,	Permit Number	
Design Location	FL, Gainesville	Jurisdiction	
		Duct Test Time	Post Construction

Duct Leakage Test Results

CFM25 Duct Leakage Test Values

Line	System	Outside Duct Leakage
1	System 1	_____ cfm25(Out)
2	System 2	_____ cfm25(Out)
3	System 3	_____ cfm25(Out)
4	System 4	_____ cfm25(Out)
5	**Total House Duct System Leakage**	Sum lines 1-4 _____ Divide by _____ (Total Conditioned Floor Area) = _____ **(Q_n,Out)**

I hereby certify that the above duct testing performance results demonstrate compliance with the Florida Energy Code requirements in accordance with Section R403.2.2.

SIGNATURE: _____

PRINTED NAME: _____

DATE: _____

Duct tightness shall be verified by testing to Section 803 of the RESNET Standards by an energy rater certified in accordance with Section 553.99, Florida Statutes.

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

BUILDING OFFICIAL: _____

DATE: _____

Residential System Sizing Calculation

Summary

Bristol Model

Project Title:
150650

Lake City, FL

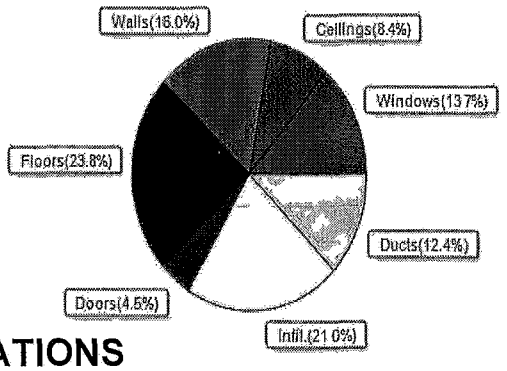
7/2/2015

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	**45578**	**Btuh**	**Total cooling load calculation**	**46136**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	120.7	55000	Sensible (SHR = 0.75)	109.3	41250
Heat Pump + Auxiliary(0.0kW)	120.7	55000	Latent	163.5	13750
			Total (Electric Heat Pump)	119.2	55000

WINTER CALCULATIONS

Winter Heating Load (for 3057 sqft)

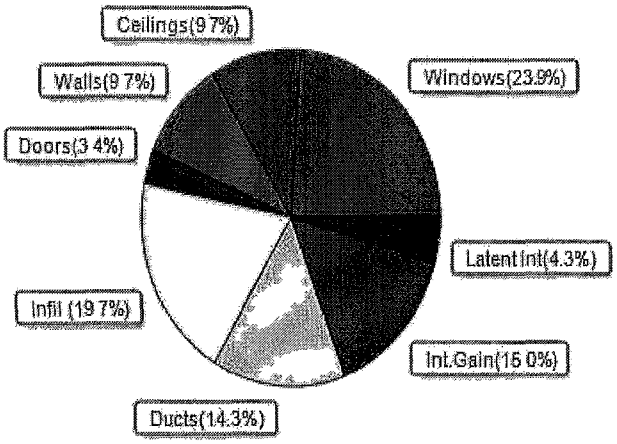
Load component			Load	
Window total	447	sqft	6256	Btuh
Wall total	2058	sqft	7305	Btuh
Door total	129	sqft	2069	Btuh
Ceiling total	2999	sqft	3838	Btuh
Floor total	See detail report		10856	Btuh
Infiltration	219	cfm	9589	Btuh
Duct loss			5664	Btuh
Subtotal			**45578**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**45578**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 3057 sqft)

Load component			Load	
Window total	447	sqft	11024	Btuh
Wall total	2058	sqft	4495	Btuh
Door total	129	sqft	1552	Btuh
Ceiling total	2999	sqft	4493	Btuh
Floor total			0	Btuh
Infiltration	164	cfm	3416	Btuh
Internal gain			6900	Btuh
Duct gain			5847	Btuh
Sens Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**37727**	**Btuh**
Latent gain(ducts)			740	Btuh
Latent gain(infiltration)			5668	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2000	Btuh
Total latent gain			**8409**	**Btuh**
TOTAL HEAT GAIN			**46136**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY 2015-07-03
DATE EVAN PEARSLEY

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Bristol Model | Project Title: 150650 | Lake City, FL | Building Type: User | 7/2/2015

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

This calculation is for Worst Case. The house has been rotated 90 degrees.

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0 25	Metal	0.35	E	72.0	14.0	1008 Btuh
2	2, NFRC 0 25	Metal	0.35	N	18.0	14.0	252 Btuh
3	2, NFRC 0.25	Metal	0.35	E	96 0	14.0	1344 Btuh
4	2, NFRC 0.25	Metal	0.35	S	36.0	14.0	504 Btuh
5	2, NFRC 0.25	Metal	0.35	S	24.0	14.0	336 Btuh
6	2, NFRC 0.25	Metal	0.35	S	6.0	14.0	84 Btuh
7	2, NFRC 0.25	Metal	0.35	W	21 3	14.0	299 Btuh
8	2, NFRC 0.25	Metal	0.35	W	30.0	14.0	420 Btuh
9	2, NFRC 0.25	Metal	0 35	W	10.0	14.0	140 Btuh
10	2, NFRC 0.25	Metal	0.35	W	36.0	14 0	504 Btuh
11	2, NFRC 0.25	Metal	0.35	N	36.0	14 0	504 Btuh
12	2, NFRC 0 25	Metal	0.35	S	30.0	14.0	420 Btuh
13	2, NFRC 0.25	Metal	0.35	W	18.0	14.0	252 Btuh
14	2, NFRC 0 25	Metal	0.35	W	13.5	14 0	189 Btuh
	Window Total				446.8(sqft)		6256 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0 089)	13.0/0.0	361	3.55	1280 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	327	3.55	1162 Btuh
3	Frame - Wood	- Ext	(0 089)	13 0/0.0	218	3.55	772 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	480	3.55	1704 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	175	3.55	620 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0 0	27	3 55	96 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	189	3.55	670 Btuh
8	Frame - Wood	- Adj	(0.089)	13.0/0.0	282	3.55	1000 Btuh
	Wall Total				2058(sqft)		7305 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)	16	16 0	256 Btuh
2	Insulated - Exterior,	n	(0.400)	16	16 0	256 Btuh
3	Insulated - Exterior,	n	(0.400)	16	16.0	256 Btuh
4	Insulated - Garage,	n	(0.400)	24	16.0	384 Btuh
5	Insulated - Exterior,	n	(0.400)	24	16.0	384 Btuh
6	Insulated - Garage,	n	(0.400)	33	16.0	533 Btuh
	Door Total			129(sqft)		2069Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/D/Shing	(0.032)	30.0/0.0	1357	1.3	1729 Btuh
2	Knee Wall/D/Shing	(0.032)	30.0/0.0	792	1.3	1009 Btuh
3	Cathedral/D/Shing	(0.032)	30.0/0.0	850	1.3	1100 Btuh
	Ceiling Total			2999(sqft)		3838Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	230.0 ft(perim.)	47.2	10856 Btuh
2	Interior	(1 180)	0.0	850.0 sqft	0.0	0 Btuh
	Floor Total			3057 sqft		10856 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Bristol Model
Lake City, FL

Project Title
150650
Building Type User

7/2/2015

				Envelope Subtotal:			30324 Btuh
Infiltration	Type Natural	Wholehouse	ACH 0 46	Volume(cuft) 28870	Wall Ratio 1 00	CFM= 219 0	9589 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.142)		5664 Btuh
All Zones				**Sensible Subtotal All Zones**			**45578 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	45578 Btuh 0 Btuh 45578 Btuh

EQUIPMENT

1. Electric Heat Pump	#	55000 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

Bristol Model

Project Title
150650

Lake City, FL

7/2/2015

Reference City: Gainesville, FL Temperature Difference 19.0F(TMY3 99%) Humidity difference: 51gr.

This calculation is for Worst Case. The house has been rotated 90 degrees.

Component Loads for Whole House

Window	Type* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0 25, 0 35		No	No	E	1 5ft	1 0ft.	72.0	2 9	69.1	12	31	2159 Btuh
2	2 NFRC	0 25, 0 35		No	No	N	1 5ft	1 0ft	18 0	0 0	18 0	12	12	214 Btuh
3	2 NFRC	0 25, 0 35		No	No	E	1 5ft.	1 0ft	96 0	2 9	93 1	12	31	2897 Btuh
4	2 NFRC	0 25, 0 35		No	No	S	1 5ft	1 0ft	36 0	36 0	0 0	12	14	429 Btuh
5	2 NFRC	0 25, 0 35		No	No	S	1 5ft	1 0ft	24 0	24 0	0 0	12	14	286 Btuh
6	2 NFRC	0 25, 0 35		No	No	S	1 5ft.	1 0ft	6 0	6 0	0 0	12	14	71 Btuh
7	2 NFRC	0 25, 0 35		No	No	W	1 5ft.	1 0ft.	21 3	0 7	20 7	12	31	644 Btuh
8	2 NFRC	0 25, 0 35		No	No	W	1 5ft.	1 0ft.	30 0	1 5	28 5	12	31	895 Btuh
9	2 NFRC	0 25, 0 35		No	No	W	1 5ft.	1 0ft.	10 0	1 5	8 5	12	31	280 Btuh
10	2 NFRC	0 25, 0 35		No	No	W	1 5ft	1 0ft	36 0	1 5	34 5	12	31	1079 Btuh
11	2 NFRC	0 25, 0 35		No	No	N	1 5ft	1 0ft.	36 0	0 0	36 0	12	12	429 Btuh
12	2 NFRC	0 25, 0 35		No	No	S	1 5ft	1 0ft	30 0	30 0	0 0	12	14	357 Btuh
13	2 NFRC	0 25, 0 35		No	No	W	1 5ft	1 0ft	18 0	0 7	17 3	12	31	540 Btuh
14	2 NFRC	0.25, 0 35		No	No	W	1 5ft	1 0ft	13.5	0 7	12 8	12	31	401 Btuh
	Excursion													343 Btuh
	Window Total								447 (sqft)					11024 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0 09	13 0/0 0	360 7	2 3	816 Btuh
2	Frame - Wood - Ext	0 09	13.0/0 0	327 3	2 3	741 Btuh
3	Frame - Wood - Ext	0 09	13 0/0 0	217 5	2 3	492 Btuh
4	Frame - Wood - Ext	0 09	13 0/0 0	480 0	2 3	1086 Btuh
5	Frame - Wood - Ext	0 09	13 0/0 0	174 7	2 3	395 Btuh
6	Frame - Wood - Ext	0 09	13 0/0 0	27 2	2 3	61 Btuh
7	Frame - Wood - Ext	0 09	13 0/0 0	188 7	2 3	427 Btuh
8	Frame - Wood - Adj	0 09	13 0/0 0	281 7	1 7	475 Btuh
	Wall Total			2058 (sqft)		4495 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	16 0	12 0	192 Btuh
2	Insulated - Exterior	16 0	12 0	192 Btuh
3	Insulated - Exterior	16 0	12 0	192 Btuh
4	Insulated - Garage	24 0	12 0	288 Btuh
5	Insulated - Exterior	24 0	12 0	288 Btuh
6	Insulated - Garage	33 3	12 0	400 Btuh
	Door Total	129 (sqft)		1552 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0 032	30 0/0 0	1357 0	1 72	2334 Btuh
2	Knee Wall/DarkShingle	0 032	30 0/0.0	792 0	1 72	1362 Btuh
3	Cath/Sngl Assem/DarkShingle	0 032	30 0/0 0	850 0	0 94	798 Btuh
	Ceiling Total			2999 (sqft)		4493 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0 0	2207 (ft-perimeter)	0 0	0 Btuh
2	Interior	0 0	850 (sqft)	0 0	0 Btuh
	Floor Total		3057.0 (sqft)		0 Btuh

		Envelope Subtotal	21564 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Bristol Model | Project Title 150650 | Climate FL_GAINESVILLE_REGIONAL_A

Lake City, FL

7/2/2015

Infiltration	Type Natural	Average ACH 0.34	Volume(cuft) 28870	Wall Ratio 1		CFM= 164.2	Load 3416	Btuh
Internal gain		Occupants 10	Btuh/occupant X 230		Appliance + 4600		Load 6900	Btuh
					Sensible Envelope Load		31880	Btuh
Duct load	Extremely sealed, Supply(R6 0-Attic), Return(R6 0-Attic)				(DGM of 0.183)		5847	Btuh
					Sensible Load All Zones		**37727**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Bristol Model

Project Title: 150650

Climate FL_GAINESVILLE_REGIONAL_A

Lake City, FL

7/2/2015

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**31880 Btuh**
	Sensible Duct Load	5847 Btuh
	Total Sensible Zone Loads	**37727 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**37727 Btuh**
	Latent infiltration gain (for 51 gr humidity difference)	5668 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	740 Btuh
	Latent occupant gain (10 0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**8409 Btuh**
	TOTAL GAIN	**46136 Btuh**

EQUIPMENT

1. Central Unit	#	55000 Btuh

*Key Window types (Panes - 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