RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

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

Applications for compliance with the 2023 Florida Building Code, Energy Conservation via the Residential Simulated Performance Alternative shall include:

- ☐ *This checklist*
- ☐ *Form R405-2023 report*
- ☐ *Input summary checklist that can be used for field verification (usually four pages/may be greater)*
- ☐ *Energy Performance Level (EPL) Display Card (one page)*
- ☐ *HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7*
- ☐ *Mandatory Requirements (five pages)*

Required prior to CO:

- ☐ *Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)*
- ☐ *A completed 2023 Envelope Leakage Test Report (usually one page); exception in R402.4 allows dwelling units of R-2 Occupancies and multiple attached single family dwellings to comply with Section C402.5*
- ☐ *If Form R405 duct leakage type indicates anything other than "default leakage", then a completed 2023 Duct Leakage Test Report - Performance Method (usually one page)*

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FORM R405-2023

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	231515 Nettles	Builder Name:	
Street:		Permit Office:	
City, State, Zip:	Lake City, FL,	Permit Number:	
Owner:	Andrew Nettles	Jurisdiction:	
Design Location:	FL, Gainesville	County:	columbia(Florida Climate Zone 2)

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Detached
3. Number of units, if multiple family	1
4. Number of Bedrooms	3
5. Is this a worst case?	No
6. Conditioned floor area above grade (ft²)	2514
Conditioned floor area below grade (ft²)	0

7. Windows(419.7 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.32	419.67 ft²
SHGC:	SHGC=0.22	
b. U-Factor:	N/A	ft²
SHGC:		
c. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		8.231 ft
Area Weighted Average SHGC:		0.220

8. Skylights	Description	Area
U-Factor:(AVG)	N/A	N/A ft²
SHGC(AVG):	N/A	

9. Floor Types	Insulation	Area
a. Slab-On-Grade Edge Insulation	R= 0.0	2514.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

10. Wall Types(2555.2 sqft.)	Insulation	Area
a. Frame - Wood, Exterior	R=19.0	2376.90 ft²
b. Frame - Wood, Exterior	R=13.0	178.33 ft²
c. N/A		
d. N/A		

11. Ceiling Types(3377.0 sqft.)	Insulation	Area
a. Flat ceiling under att (Vented)	R=38.0	2514.00 ft²
b. Knee wall to attic (Vented)	R=38.0	863.00 ft²
c. N/A		

12. Roof(Comp. Shingles, Vented)	Deck R=0.0	2911 ft²

13. Ducts, location & insulation level	R	ft²
a. Sup: Attic, Ret: Attic, AH: Main	6	503
b.		
c.		

14. Cooling Systems	kBtu/hr	Efficiency
a. Central Unit	44.0	SEER2:15.00

15. Heating Systems	kBtu/hr	Efficiency
a. Electric Heat Pump	44.0	HSPF2:8.00

16. Hot Water Systems	
a. Electric	Cap: 50 gallons
	EF: 0.950
b. Conservation features	
	None
17. Credits	None

Glass/Floor Area: 0.167

Total Proposed Modified Loads: 66.14

Total Baseline Loads: 71.64

PASS

NOTE: Proposed residence must have annual total normalized Modified Loads that are less than or equal to 95 percent of the annual total loads of the standard reference design in order to comply.

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

PREPARED BY: Evan Beamsley

DATE: 2024-01-03

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 R403.3.2.1.

- 1 of the 1 duct systems requires a Duct Leakage Test Report. Systems with Default duct leakage do not require this report.

- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires a PERFORMANCE envelope leakage test report with envelope leakage no greater than 7.00 ACH50 (R402.4.1.2).

FORM R405-2023

INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	231515 Nettles			Address type:	Street Address
Building Type:	User	Bedrooms:	3	Lot #:	---
Owner:	Andrew Nettles	Conditioned Area:	2514	Block/SubDivision:	---
Builder Home ID:		Total Stories:	1	PlatBook:	---
Builder Name:		Worst Case:	No	Street:	
Permit Office:		Rotate Angle:	0	County:	columbia
Jurisdiction:		Cross Ventilation:		City, State, Zip:	Lake City,
Family Type:	Detached	Whole House Fan:			FL,
New/Existing:	New (From Plans)	Terrain:	Suburban		
Year Construct:	2024	Shielding:	Suburban		
Comment:					

CLIMATE

√	Design Location	Tmy Site	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_REGIONA	32	92	70	75	1305.5	51	Medium

BLOCKS

√	Number	Name	Area	Volume
___	1	Block1	2514	28031 cu ft

SPACES

√	Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Finished	Cooled	Heated
___	1	Main	2514	28031	Yes	4	3	Yes	Yes	Yes

FLOORS (Total Exposed Area = 2514 sq.ft.)

√	#	Floor Type	Space	Exposed Perim(ft)	Area	R-Value Perim.	R-Value Joist	U-Factor	Slab Insul. Vert/Horiz	Tile	Wood	Carpet
___	1	Slab-On-Grade Edge Ins	Main	244	2514 sqft	0	---	0.587	0 (ft)/0 (ft)	0.30	0.30	0.40

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
___	1	Gable or shed	Composition shingles	2911 ft²	734 ft²	Medium	N	0.85	No	0.9	No	0	30.26

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
___	1	Full attic	Vented	300	2514 ft²	N	N

CEILING (Total Exposed Area = 3377 sq.ft.)

√	#	Ceiling Type	Space	R-Value	Ins. Type	Area	U-Factor	Framing Frac.	Truss Type
___	1	Flat ceiling under attic(Vented)	Main	38.0	Blown	2514.0ft²	0.051	0.00	Wood
___	2	Knee wall to attic(Vented)	Main	38.0	Batt	863.0ft²	0.061	0.11	Wood

FORM R405-2023

INPUT SUMMARY CHECKLIST REPORT

WALLS (Total Exposed Area = 2555 sq.ft.)

√ #	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area sq.ft.	U-Factor	Sheath R-Value	Frm. Frac.	Solar Absor.	Below Grade
___ 1	N	Exterior	Frame - Wood	Main	19.0	18.0	4	10.0	0	183.3	0.071		0.23	0.50	0 %
___ 2	E	Exterior	Frame - Wood	Main	19.0	5.0	8	10.0	0	56.7	0.071		0.23	0.50	0 %
___ 3	N	Exterior	Frame - Wood	Main	19.0	20.0	4	10.0	0	203.3	0.071		0.23	0.50	0 %
___ 4	W	Exterior	Frame - Wood	Main	19.0	2.0	4	10.0	0	23.3	0.071		0.23	0.50	0 %
___ 5	N	Exterior	Frame - Wood	Main	19.0	9.0	8	10.0	0	96.7	0.071		0.23	0.50	0 %
___ 6	W	Exterior	Frame - Wood	Main	19.0	6.0	0	10.0	0	60.0	0.071		0.23	0.50	0 %
___ 7	N	Exterior	Frame - Wood	Main	19.0	10.0	2	10.0	0	101.7	0.071		0.23	0.50	0 %
___ 8	W	Exterior	Frame - Wood	Main	13.0	2.0	8	10.0	0	26.7	0.094		0.23	0.50	0 %
___ 9	N	Exterior	Frame - Wood	Main	13.0	12.0	6	10.0	0	125.0	0.094		0.23	0.50	0 %
___ 10	E	Exterior	Frame - Wood	Main	13.0	2.0	8	10.0	0	26.7	0.094		0.23	0.50	0 %
___ 11	E	Exterior	Frame - Wood	Main	19.0	37.0	4	10.0	0	373.3	0.071		0.23	0.50	0 %
___ 12	S	Exterior	Frame - Wood	Main	19.0	14.0	4	10.0	0	143.3	0.071		0.23	0.50	0 %
___ 13	E	Exterior	Frame - Wood	Main	19.0	4.0	0	12.0	0	48.0	0.071		0.23	0.50	0 %
___ 14	S	Exterior	Frame - Wood	Main	19.0	16.0	8	10.0	0	166.7	0.071		0.23	0.50	0 %
___ 15	W	Exterior	Frame - Wood	Main	19.0	1.0	0	10.0	0	10.0	0.071		0.23	0.50	0 %
___ 16	S	Exterior	Frame - Wood	Main	19.0	7.0	4	10.0	0	73.3	0.071		0.23	0.50	0 %
___ 17	E	Exterior	Frame - Wood	Main	19.0	1.0	0	10.0	0	10.0	0.071		0.23	0.50	0 %
___ 18	S	Exterior	Frame - Wood	Main	19.0	16.0	8	10.0	0	166.7	0.071		0.23	0.50	0 %
___ 19	W	Exterior	Frame - Wood	Main	19.0	5.0	0	12.0	0	60.0	0.071		0.23	0.50	0 %
___ 20	S	Exterior	Frame - Wood	Main	19.0	16.0	0	10.0	0	160.0	0.071		0.23	0.50	0 %
___ 21	W	Exterior	Frame - Wood	Main	19.0	33.0	8	10.0	0	336.7	0.071		0.23	0.50	0 %
___ 22	S	Exterior	Frame - Wood	Main	19.0	8.0	8	6.0	4	54.9	0.071		0.23	0.50	0 %
___ 23	S	Exterior	Frame - Wood	Main	19.0	7.0	0	7.0	0	49.0	0.071		0.23	0.50	0 %

DOORS (Total Exposed Area = 147 sq.ft.)

√ #	Ornt	Adjacent To	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
___ 1	E		Insulated	Main	None	0.40	0.00	8	8.00	0	5.3ft²
___ 2	N		Insulated	Main	None	0.40	4.00	0	8.00	0	32.0ft²
___ 3	N		Insulated	Main	None	0.40	2.00	8	8.00	0	21.3ft²
___ 4	N		Insulated	Main	None	0.40	6.00	0	8.00	0	48.0ft²
___ 5	N		Insulated	Main	None	0.40	3.00	0	8.00	0	24.0ft²
___ 6	S		Insulated	Main	None	0.40	2.00	0	8.00	0	16.0ft²

WINDOWS (Total Exposed Area = 420 sq.ft.)

√ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Storm	Total Area (ft²)	Same Units	Width (ft)	Height (ft)	--Overhang-- Depth (ft)	--Overhang-- Sep. (ft)	Interior Shade	Screen
___ 1	N	1	Metal	Low-E Double	Y	0.32	0.22	N	N	36.0	2	3.00	6.00	1.5	1.5	None	None
___ 2	N	1	Metal	Low-E Double	Y	0.32	0.22	N	N	4.5	1	3.00	1.50	1.5	1.5	None	None
___ 3	E	2	Metal	Low-E Double	Y	0.32	0.22	N	N	10.7	1	1.33	8.00	20.3	-7.0	None	None
___ 4	N	3	Metal	Low-E Double	Y	0.32	0.22	N	N	96.0	1	12.00	8.00	17.8	1.0	None	None
___ 5	N	5	Metal	Low-E Double	Y	0.32	0.22	N	N	16.0	1	4.00	4.00	15.5	1.0	None	None
___ 6	E	11	Metal	Low-E Double	Y	0.32	0.22	N	N	4.5	1	3.00	1.50	1.5	3.3	None	None
___ 7	E	11	Metal	Low-E Double	Y	0.32	0.22	N	N	10.0	1	2.50	4.00	1.5	6.3	None	None
___ 8	E	11	Metal	Low-E Double	Y	0.32	0.22	N	N	4.5	1	3.00	1.50	1.5	10.3	None	None
___ 9	S	12	Metal	Low-E Double	Y	0.32	0.22	N	N	36.0	2	3.00	6.00	1.5	1.5	None	None
___ 10S		14	Metal	Low-E Double	Y	0.32	0.22	N	N	36.0	2	3.00	6.00	8.5	1.5	None	None
___ 11S		16	Metal	Low-E Double	Y	0.32	0.22	N	N	32.0	1	4.00	8.00	9.5	1.5	None	None
___ 12S		16	Metal	Low-E Double	Y	0.32	0.22	N	N	9.0	1	6.00	1.50	9.5	0.0	None	None
___ 13S		18	Metal	Low-E Double	Y	0.32	0.22	N	N	36.0	2	3.00	6.00	8.5	1.0	None	None
___ 14S		20	Metal	Low-E Double	Y	0.32	0.22	N	N	36.0	2	3.00	6.00	1.5	1.5	None	None
___ 15W		21	Metal	Low-E Double	Y	0.32	0.22	N	N	4.5	1	3.00	1.50	1.5	11.0	None	None
___ 16S		22	Metal	Low-E Double	Y	0.32	0.22	N	N	21.3	2	2.67	4.00	1.5	1.0	None	None

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INPUT SUMMARY CHECKLIST REPORT

WINDOWS(Continued)

___	17S	23	Metal	Low-E Double	Y	0.32	0.22	N	N	26.7	2	2.67	5.00	1.5	4.0	None	None

INFILTRATION

√	#	Scope	Method	SLA	CFM50	ELA	EqLA	ACH	ACH50	Space(s)	Infiltration Test Volume
___	1	Wholehouse	Proposed ACH(50)	0.00050	3270	179.42	336.84	0.1566	7.0	All	28031 cu ft

MASS

√	#	Mass Type	Area	Thickness	Furniture Fraction	Space
___	1	Default(8 lbs/sq.ft.)	0 ft²	0 ft	0.30	Main

HEATING SYSTEM

√	#	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	----Geothermal HeatPump---- Entry	Power	Volt	Current	Ducts	Block
___	1	Electric Heat Pump	None/Single		HSPF2: 8.00	44.0		0.00	0.00	0.00	sys#1	1

COOLING SYSTEM

√	#	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	Air Flow cfm	SHR	Duct	Block
___	1	Central Unit	None/Single		SEER2:15.0	44.0	1320	0.75	sys#1	1

HOT WATER SYSTEM

√	#	System Type	Subtype	Location	EF(UEF)	Cap	Use	SetPnt	Fixture Flow	Pipe Ins.	Pipe length
___	1	Electric	None	Main	0.95 (0.93)	50.00 gal	60 gal	120 deg	Standard	=>R-3	82

		Recirculation System	Recirc Control Type	Loop length	Branch length	Pump power	DWHR	Facilities Connected	Equal Flow	DWHR Eff	Other Credits
___	1	No		NA	NA	NA	No	NA	NA	NA	None

DUCTS

√	Duct #	Supply Location	Supply R-Value	Supply Area	Return Location	Return R-Value	Return Area	Leakage Type	Air Handler	CFM 25 TOT	CFM 25 OUT	QN OUT	RLF	HVAC # Heat	HVAC # Cool
___	1	Attic	6.0	503 ft²	Attic	6.0	126 ft²	Default Leakage	Main	(Default)	(Default)			1	1

TEMPERATURES

Programable Thermostat: N Ceiling Fans: N

	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]	[ ]

INPUT SUMMARY CHECKLIST REPORT

TEMPERATURES(Continued)

✓	Thermostat Schedule: HERS 2006 Reference Schedule Type		Hours 1	2	3	4	5	6	7	8	9	10	11	12
___	Cooling (WD)	AM	78	78	78	78	78	78	78	78	78	78	78	78
		PM	78	78	78	78	78	78	78	78	78	78	78	78
___	Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
		PM	78	78	78	78	78	78	78	78	78	78	78	78
___	Heating (WD)	AM	68	68	68	68	68	68	68	68	68	68	68	68
		PM	68	68	68	68	68	68	68	68	68	68	68	68
___	Heating (WEH)	AM	68	68	68	68	68	68	68	68	68	68	68	68
		PM	68	68	68	68	68	68	68	68	68	68	68	68

FORM R405-2023

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 92

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		Detached
3. Number of units, if multiple family		1
4. Number of Bedrooms		3
5. Is this a worst case?		No
6. Conditioned floor area above grade (ft²)		2514
Conditioned floor area below grade (ft²)		0

7. Windows**	Description	Area
a. U-Factor:	Dbl, U=0.32	419.67 ft²
SHGC:	SHGC=0.22	
b. U-Factor:	N/A	ft²
SHGC:		
c. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		8.231 ft
Area Weighted Average SHGC:		0.220

8. Skylights	Description	Area
U-Factor:(AVG)	N/A	N/A ft²
SHGC(AVG):	N/A	

9. Floor Types	Insulation	Area
a. Slab-On-Grade Edge Insulation	R= 0.0	2514.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

10. Wall Types(2555.2 sqft.)	Insulation	Area
a. Frame - Wood, Exterior	R=19.0	2376.90 ft²
b. Frame - Wood, Exterior	R=13.0	178.33 ft²
c. N/A		
d. N/A		

11. Ceiling Types(3377.0 sqft.)	Insulation	Area
a. Flat ceiling under att (Vented)	R=38.0	2514.00 ft²
b. Knee wall to attic (Vented)	R=38.0	863.00 ft²
c. N/A		

12. Roof(Comp. Shingles, Vented)	Deck R=0.0	2911 ft²

13. Ducts, location & insulation level	R	ft²
a. Sup: Attic, Ret: Attic, AH: Main	6	503
b.		
c.		

14. Cooling Systems	kBtu/hr	Efficiency
a. Central Unit	44.0	SEER2:15.00

15. Heating Systems	kBtu/hr	Efficiency
a. Electric Heat Pump	44.0	HSPF2:8.00

16. Hot Water Systems	
a. Electric	Cap: 50 gallons
	EF: 0.950
b. Conservation features	
	None
17. Credits	None

I certify that this home has complied with the Florida Energy Efficiency Code for Building Construction through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL Display Card will be completed based on installed Code compliant features.

Builder Signature: _____ Date: _____

Address of New Home: City/FL Zip: Lake City,FL,

*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 Energy Rating. 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 Building Code, Energy Conservation, 8th Edition (2023)
Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS:	Permit Number:
Lake City, FL	

MANDATORY REQUIREMENTS - See individual code sections for full details.

SECTION R401 GENERAL

☐ **R401.3 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 code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

SECTION R402 BUILDING THERMAL ENVELOPE

☐ **R402.2.10.1 Slab-on-grade floor insulation installation (Mandatory).** Where installed, the insulation shall extend downward from the top of the slab on the outside or inside of the foundation wall. Insulation located below grade shall be extended the distance provided in Table R402.1.2, or the distance of the proposed design as applicable, by any combination of vertical insulation, insulation extending under the slab or insulation extending out from the building. Insulation extending away from the building shall be protected by pavement or by not less than 10 inches (254 mm) of soil. The top edge of the insulation installed between the exterior wall and the edge of the interior slab shall be permitted to be cut at a 45-degree (0.79 rad) angle away from the exterior wall.

☐ **R402.2.11.1 Crawl space walls insulation installation (Mandatory).** Where crawl space wall insulation is installed, it shall be permanently fastened to the wall and extend downward from the floor to the finished grade level and then vertically and/or horizontally for at least an additional 24 inches (610 mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder in accordance with the Florida Building Code, Building, or Florida Building Code, Residential, as applicable. All joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (153 mm) up the stem wall and shall be attached to the stem wall.

☐ **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

> **Exception:** Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.

☐ **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 not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Dwelling units with an air leakage rate less than three air changes per hour shall be provided with whole-house mechanical ventilation in accordance with Section R403.6.1 of this code and Section M1507.3 of the Florida Building Code, Residential. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i) or 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.

> **Exception:** Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent 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.
6. Supply and return registers, if installed at the time of the test, shall be fully open.
7. If an attic is both air sealed and insulated at the roof deck, interior access doors and hatches between the conditioned space volume and the attic shall be opened during the test and the volume of the attic shall be added to the conditioned space volume for purposes of reporting an infiltration volume and calculating the air leakage of the home.

☐ **R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

☐ **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 Rooms containing fuel - burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

Exceptions:

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

☐ **R402.4.5 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 E283 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.

☐ **R402.4.6 Air-sealed electrical and communication boxes.** Air-sealed electrical and communication boxes that penetrate the air barrier of the building thermal envelope shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. Air-sealed boxes shall be buried in or surrounded by insulation. Air-sealed boxes shall be marked in accordance with NEMA OS 4. Air-sealed boxes shall be installed in accordance with the manufacturer's instructions.

SECTION R403 SYSTEMS

R403.1 Controls

☐ **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 with supplementary electric-resistance heaters shall have controls that limit supplemental heat operation to only those times when one of the following applies:

1. The vapor compression cycle cannot provide the necessary heating energy to satisfy the thermostat setting.
2. The heat pump is operating in defrost mode.
3. The vapor compression cycle malfunctions.
4. The thermostat malfunctions

☐ **R403.3.2 Sealing (Mandatory).** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), Florida Statutes, to be “substantially leak free” in accordance with Section R403.3.3.

☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer’s designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer’s air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.

2 Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer’s air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exceptions;

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying by Section 405 of this code. Duct leakage testing is required for Section R405 compliance where credit is taken for leakage, and a duct air leakage Qn to the outside of less than 0.080 (where Qn = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is indicated in the compliance report for the proposed design.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official

☐ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums

☐ **R403.4 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.

☐ **R403.4.1 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.

☐ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory).** If heated water circulation systems are installed, they shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

☐ **R403.5.2 Demand recirculation water systems (Mandatory).** Where installed, demand recirculation water systems shall have controls that comply with both of the following:

1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.
2. The control shall limit the temperature of the water entering the cold water piping to 104ºF (40ºC).

☐ **R403.5.5 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.

R403.5.6 Water heater efficiencies (Mandatory).

☐ **R403.5.6.1.1 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).

☐ **R403.5.6.1.2 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.

☐ **R403.5.6.2 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 of Section R403.5.6.2.1.

☐ **R403.5.6.2.1 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.

☐ **R403.6 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 including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

☐ **R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.

Exception: Where an air handler that is integral to tested and listed HVAC equipment is used to provide whole-house mechanical ventilation, the air handler shall be powered by an electronically commutated motor.

TABLE R403.6.1
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY[a] (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
HRV or ERV	Any	1.2 cfm/watt	Any
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	3.8 cfm/watt	Any
Bathroom, utility room	10	2.8 cfm/watt	<90
Bathroom, utility room	90	3.5 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

☐ **R403.6.2 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 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.

2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.

3. If ventilation air is drawn from enclosed space(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.

R403.7 Heating and cooling equipment.

☐ **R403.7.1 Equipment sizing (Mandatory).** 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 that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

☐ **R403.7.1.1 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 R403.7, 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.
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 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 temperatures 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 multiple-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 multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

R403.7.1.2 Heating equipment capacity.

☐ **R403.7.1.2.1 Heat pumps.** Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.

☐ **R403.7.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.

☐ **R403.7.1.2.3 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 R403.7.1.

☐ **R403.7.1.3 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.

☐ **R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the Florida Building Code, Energy Conservation—Commercial Provisions in lieu of Section R403.

☐ **R403.9 Snow melt and ice 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 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).

☐ **403.10 Pools and permanent spa energy consumption (Mandatory).** The energy consumption of pools and permanent spas shall be in accordance with Sections R403.10.1 through R403.10.5.

☐ **R403.10.1 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater.
Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

☐ **R403.10.2 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

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

☐ **R403.10.3 Covers.** Outdoor heated swimming pools and outdoor permanent 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: Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required

☐ **R403.10.4 Gas- and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa 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 or LP gas shall not have continuously burning pilot lights.

☐ **R403.10.5 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.

☐ **R403.11 Portable spas (Mandatory).** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14

☐ **R403.13 Dehumidifiers (Mandatory).** If installed, a dehumidifier shall conform to the following requirements:

1. The minimum rated efficiency of the dehumidifier shall be greater than 1.7 liters/ kWh if the total dehumidifier capacity for the house is less than 75 pints/day and greater than 2.38 liters/kWh if the total dehumidifier capacity for the house is greater than or equal to 75 pints/day.
2. The dehumidifier shall be controlled by a sensor that is installed in a location where it is exposed to mixed house air.
3. Any dehumidifier unit located in unconditioned space that treats air from conditioned space shall be insulated to a minimum of R-2.
4. Condensate disposal shall be in accordance with Section M1411.3.1 of the Florida Building Code, Residential.

☐ **R403.13.1 Ducted dehumidifiers.** Ducted dehumidifiers shall, in addition to conforming to the requirements of Section R403.13, conform to the following requirements:

1. If a ducted dehumidifier is configured with return and supply ducts both connected into the supply side of the cooling system, a backdraft damper shall be installed in the supply air duct between the dehumidifier inlet and outlet duct.
2. If a ducted dehumidifier is configured with only its supply duct connected into the supply side of the central heating and cooling system, a backdraft damper shall be installed in the dehumidifier supply duct between the dehumidifier and central supply duct.
3. A ducted dehumidifier shall not be ducted to or from a central ducted cooling system on the return duct side upstream from the central cooling evaporator coil.
4. Ductwork associated with a dehumidifier located in unconditioned space shall be insulated to a minimum of R-6.

SECTION R404
ELECTRICAL POWER AND LIGHTING SYSTEMS

☐ **R404.1 Lighting equipment (Mandatory).** All permanently installed luminaires, excluding those in kitchen appliances, shall have an efficacy of at least 45 lumens-per-watt or shall utilize lamps with an efficacy of not less than 65 lumens-per-watt.

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

SECTION R405
SIMULATED PERFORMANCE ALTERNATIVE
(PERFORMANCE)

☐ **R405.2 Mandatory requirements.** Compliance with this section requires that the mandatory provisions identified in Section R401.2 be met. All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6, except site-wrapped supply ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-8.

☐ **R405.2.1 Ceiling insulation.** Ceilings shall have an insulation level of at least R-19, space permitting. For the purposes of this code, types of ceiling construction that are considered to have inadequate space to install R-19 include single assembly ceilings of the exposed deck and beam type and concrete deck roofs. Such ceiling assemblies shall be insulated to at least a level of R-10.

☐ **R405.2.2 Building air leakage testing.** Building or dwelling air leakage testing shall be in accordance with Sections R402.4 through R402.4.1.2. If an air leakage rate below seven air changes per hour at a pressure of 0.2 inch w.g. (50 pascals) is specified for the proposed design, testing shall verify the air leakage rate does not exceed the air leakage rate of the proposed design instead of seven air changes per hour.

☐ **R405.2.3 Duct air leakage testing.** In cases where duct air leakage lower than the default Qn to outside of 0.080 (where Qn = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is specified for the proposed design, testing in accordance with Section R403.3.2 shall verify a duct air leakage rate not exceeding the leakage rate of the proposed design. Otherwise, in accordance with Section R403.3.3, duct testing is not mandatory for buildings complying by Section R405.

SECTION R406
ENERGY RATING INDEX
COMPLIANCE ALTERNATIVE

☐ **R406.2 Mandatory requirements.** Compliance with this section requires that the provisions identified in Sections R401 through R404 labeled as “mandatory” and Section R403.5.3 of the 2015 International Energy Conservation Code be met. For buildings that do not utilize on-site renewable power production for compliance with this section, the building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code. For buildings that utilize on-site renewable power production for compliance with this section, the building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table R402.1.2 or Table R402.1.4 of the 2015 International Energy Conservation Code.

> **Exception:** Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.

☐ **R406.2.1 Site-wrapped supply ducts.** Site-wrapped supply ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-8.

2023 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA-TABLE 402.4.1.1[a]

Project Name:	231515 Nettles	Builder Name:	
Street:		Permit Office:	
City, State, Zip:	Lake City, FL,	Permit Number:	
Owner:	Andrew Nettles	Jurisdiction:	
Design Location:	FL, Gainesville	County:	columbia(Florida Climate Zone 2)

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA	CHECK
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air 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.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.	
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.	
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.		
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.	
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.	
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace walls.	
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening 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 sealed to the finished surface.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.	
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	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.	
Electrical, communication, and other equipment boxes, housings, and enclosures	Boxes, housings, and enclosures that penetrate the air barrier shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. All concealed openings into the box, housing, or enclosure shall be sealed. The continuity of the air barrier shall be maintained around boxes, housings, and enclosures that penetrate the air barrier. Alternatively, air-sealed boxes shall be installed in accordance with R402.4.6	Boxes, housings, and enclosures shall be buried in or surrounded by tightly fitted insulation.	
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or ceiling penetrated by the boot.		
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids voids between fire sprinkler cover plates and walls or ceilings.		

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2023 Florida Building Code, Energy Conservation, 8th Edition

Jurisdiction:	Permit #:

Job Information

Builder: Community: Lot: NA

Address:

City: Lake City State: FL Zip:

Air Leakage Test Results *Passing results must meet either the Performance, Prescriptive, or ERI Method*

○ **PRESCRIPTIVE METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

● **PERFORMANCE or ERI METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2023 (Performance) or R406-2023 (ERI), section labeled as infiltration, sub-section ACH50.

ACH(50) specified on Form R405-2023-Energy Calc (Performance) or R406-2023 (ERI): 7.000

_____ x 60 ÷ 28031 = _____
CFM(50) Building Volume ACH(50)

☐ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

○ Retrieved from architectural plans

● Code software calculated

○ Field measured and calculated

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Dwelling units with an air leakage rate less than three air changes per hour shall be provided with whole-house mechanical ventilation in accordance with Section R403.6.1 of this code and Section M1507.3 if the *Florida Building Code, Residential.* Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statues,*or individuals licensed as set forth in Section 489.105(3)(f), (g), or (i) or 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, back draft 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.
6. Supply and return registers, if installed at the time of the test, shall be fully open.
7. If an attic is both sealed and insulated at the roof deck, interior access doors and hatches between the conditioned space volume and the attic shall be opened during the test and the volume of the attic shall be added to the conditioned space volume for purposes of reporting the infiltration volume and calculating the air leakage of the home.

Testing Company

Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2023 8th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: _____ Date of Test: _____

Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____

Residential System Sizing Calculation

Summary

Andrew Nettles

Lake City, FL

Project Title:
231515 Nettles

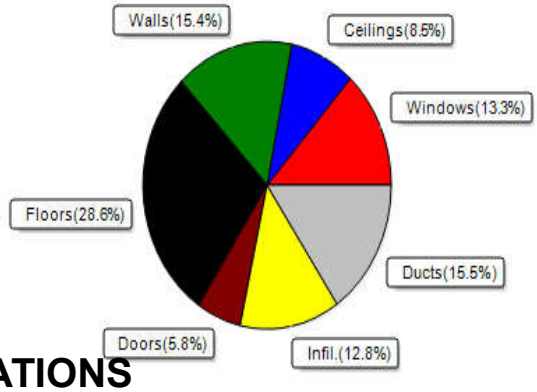
2024-01-03

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	**40238**	**Btuh**	**Total cooling load calculation**	**33114**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	109.3	44000	Sensible (SHR = 0.75)	118.6	33000
Heat Pump + Auxiliary(0.0kW)	109.3	44000	Latent	207.7	11000
			Total (Electric Heat Pump)	132.9	44000

WINTER CALCULATIONS

Winter Heating Load (for 2514 sqft)

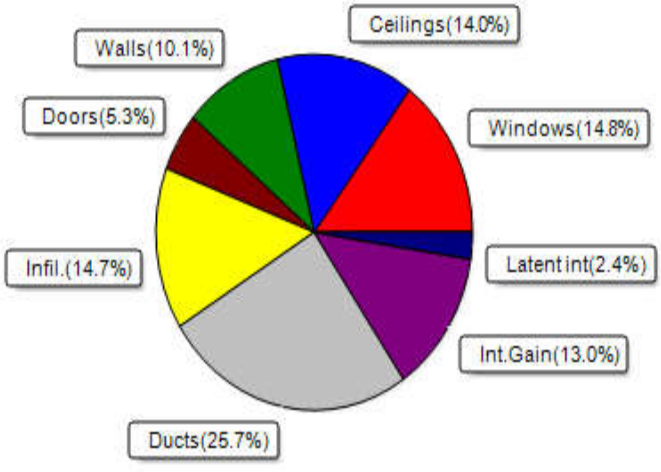
Load component			Load	
Window total	420	sqft	5372	Btuh
Wall total	1989	sqft	6196	Btuh
Door total	147	sqft	2347	Btuh
Ceiling total	3377	sqft	3428	Btuh
Floor total	2514	sqft	11517	Btuh
Infiltration	117	cfm	5136	Btuh
Duct loss			6242	Btuh
Subtotal			**40238**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**40238**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2514 sqft)

Load component			Load	
Window total	420	sqft	4888	Btuh
Wall total	1989	sqft	3354	Btuh
Door total	147	sqft	1760	Btuh
Ceiling total	3377	sqft	4628	Btuh
Floor total			0	Btuh
Infiltration	88	cfm	1830	Btuh
Internal gain			4320	Btuh
Duct gain			7039	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**27818**	**Btuh**
Latent gain(ducts)			1460	Btuh
Latent gain(infiltration)			3036	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			800	Btuh
Total latent gain			**5296**	**Btuh**
TOTAL HEAT GAIN			**33114**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2024-01-03

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Andrew Nettles

Project Title:
231515 Nettles

Lake City, FL

Building Type: User

2024-01-03

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0.22	Metal	0.32	N	36.0	12.8	461 Btuh
2	2, NFRC 0.22	Metal	0.32	N	4.5	12.8	58 Btuh
3	2, NFRC 0.22	Metal	0.32	E	10.7	12.8	137 Btuh
4	2, NFRC 0.22	Metal	0.32	N	96.0	12.8	1229 Btuh
5	2, NFRC 0.22	Metal	0.32	N	16.0	12.8	205 Btuh
6	2, NFRC 0.22	Metal	0.32	E	4.5	12.8	58 Btuh
7	2, NFRC 0.22	Metal	0.32	E	10.0	12.8	128 Btuh
8	2, NFRC 0.22	Metal	0.32	E	4.5	12.8	58 Btuh
9	2, NFRC 0.22	Metal	0.32	S	36.0	12.8	461 Btuh
10	2, NFRC 0.22	Metal	0.32	S	36.0	12.8	461 Btuh
11	2, NFRC 0.22	Metal	0.32	S	32.0	12.8	410 Btuh
12	2, NFRC 0.22	Metal	0.32	S	9.0	12.8	115 Btuh
13	2, NFRC 0.22	Metal	0.32	S	36.0	12.8	461 Btuh
14	2, NFRC 0.22	Metal	0.32	S	36.0	12.8	461 Btuh
15	2, NFRC 0.22	Metal	0.32	W	4.5	12.8	58 Btuh
16	2, NFRC 0.22	Metal	0.32	S	21.3	12.8	273 Btuh
17	2, NFRC 0.22	Metal	0.32	S	26.7	12.8	341 Btuh
	Window Total				419.7(sqft)		5372 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	143	3.09	441 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	41	3.09	126 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	75	3.09	233 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	23	3.09	72 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	81	3.09	249 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	60	3.09	185 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	80	3.09	248 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	27	3.55	95 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	53	3.55	188 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	27	3.55	95 Btuh
11	Frame - Wood	- Ext	(0.077)	19.0/0.0	354	3.09	1095 Btuh
12	Frame - Wood	- Ext	(0.077)	19.0/0.0	107	3.09	332 Btuh
13	Frame - Wood	- Ext	(0.077)	19.0/0.0	48	3.09	148 Btuh
14	Frame - Wood	- Ext	(0.077)	19.0/0.0	131	3.09	404 Btuh
15	Frame - Wood	- Ext	(0.077)	19.0/0.0	10	3.09	31 Btuh
16	Frame - Wood	- Ext	(0.077)	19.0/0.0	16	3.09	50 Btuh
17	Frame - Wood	- Ext	(0.077)	19.0/0.0	10	3.09	31 Btuh
18	Frame - Wood	- Ext	(0.077)	19.0/0.0	131	3.09	404 Btuh
19	Frame - Wood	- Ext	(0.077)	19.0/0.0	60	3.09	185 Btuh
20	Frame - Wood	- Ext	(0.077)	19.0/0.0	124	3.09	383 Btuh
21	Frame - Wood	- Ext	(0.077)	19.0/0.0	332	3.09	1027 Btuh
22	Frame - Wood	- Ext	(0.077)	19.0/0.0	34	3.09	104 Btuh
23	Frame - Wood	- Ext	(0.077)	19.0/0.0	22	3.09	69 Btuh
	Wall Total				1989(sqft)		6196 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Andrew Nettles
Lake City, FL

Project Title:
231515 Nettles
Building Type: User

2024-01-03

Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		5	16.0	85 Btuh
2	Insulated - Exterior,	n	(0.400)		32	16.0	512 Btuh
3	Insulated - Exterior,	n	(0.400)		21	16.0	341 Btuh
4	Insulated - Exterior,	n	(0.400)		48	16.0	768 Btuh
5	Insulated - Exterior,	n	(0.400)		24	16.0	384 Btuh
6	Insulated - Exterior,	n	(0.400)		16	16.0	256 Btuh
	Door Total				147(sqft)		2347Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	2514	1.0	2552 Btuh
2	Knee wall/D/Shing		(0.025)	38.0/0.0	863	1.0	876 Btuh
	Ceiling Total				3377(sqft)		3428Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	244.0 ft(perim.)	47.2	11517 Btuh
	Floor Total				2514 sqft		11517 Btuh
					Envelope Subtotal:		28860 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.25	28031	1.00	117.1	5136 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.184)	6242 Btuh
All Zones					**Sensible Subtotal All Zones**		**40238 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss		40238 Btuh
	Ventilation Sens. Heat Loss	(Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss		40238 Btuh

EQUIPMENT

1. Electric Heat Pump	#	44000 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Andrew Nettles

Project Title:
231515 Nettles

Lake City, FL

Building Type: User

2024-01-03

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

Andrew Nettles

Project Title:
231515 Nettles

Lake City, FL

2024-01-03

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.22, 0.32		No	No	N	1.5ft	1.5ft	36.0	0.0	36.0	11	11	385 Btuh
2	2 NFRC	0.22, 0.32		No	No	N	1.5ft	1.5ft	4.5	0.0	4.5	11	11	48 Btuh
3	2 NFRC	0.22, 0.32		No	No	E	20.3f	0.0ft	10.7	10.7	0.0	11	27	114 Btuh
4	2 NFRC	0.22, 0.32		No	No	N	17.8f	1.0ft	96.0	0.0	96.0	11	11	1028 Btuh
5	2 NFRC	0.22, 0.32		No	No	N	15.5f	1.0ft	16.0	0.0	16.0	11	11	171 Btuh
6	2 NFRC	0.22, 0.32		No	No	E	1.5ft	3.3ft	4.5	0.0	4.5	11	27	123 Btuh
7	2 NFRC	0.22, 0.32		No	No	E	1.5ft	6.3ft	10.0	0.0	10.0	11	27	273 Btuh
8	2 NFRC	0.22, 0.32		No	No	E	1.5ft	10.3f	4.5	0.0	4.5	11	27	123 Btuh
9	2 NFRC	0.22, 0.32		No	No	S	1.5ft	1.5ft	36.0	36.0	0.0	11	12	385 Btuh
10	2 NFRC	0.22, 0.32		No	No	S	8.5ft	1.5ft	36.0	36.0	0.0	11	12	385 Btuh
11	2 NFRC	0.22, 0.32		No	No	S	9.5ft	1.5ft	32.0	32.0	0.0	11	12	343 Btuh
12	2 NFRC	0.22, 0.32		No	No	S	9.5ft	0.0ft	9.0	9.0	0.0	11	12	96 Btuh
13	2 NFRC	0.22, 0.32		No	No	S	8.5ft	1.0ft	36.0	36.0	0.0	11	12	385 Btuh
14	2 NFRC	0.22, 0.32		No	No	S	1.5ft	1.5ft	36.0	36.0	0.0	11	12	385 Btuh
15	2 NFRC	0.22, 0.32		No	No	W	1.5ft	11.0f	4.5	0.0	4.5	11	27	123 Btuh
16	2 NFRC	0.22, 0.32		No	No	S	1.5ft	1.0ft	21.3	21.3	0.0	11	12	228 Btuh
17	2 NFRC	0.22, 0.32		No	No	S	1.5ft	4.0ft	26.7	24.1	2.5	11	12	290 Btuh
	Window Total								420 (sqft)					4888 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.08	19.0/0.0	142.8	1.7	236 Btuh
2	Frame - Wood - Ext	0.08	19.0/0.0	40.7	1.7	67 Btuh
3	Frame - Wood - Ext	0.08	19.0/0.0	75.3	1.7	125 Btuh
4	Frame - Wood - Ext	0.08	19.0/0.0	23.3	1.7	39 Btuh
5	Frame - Wood - Ext	0.08	19.0/0.0	80.7	1.7	133 Btuh
6	Frame - Wood - Ext	0.08	19.0/0.0	60.0	1.7	99 Btuh
7	Frame - Wood - Ext	0.08	19.0/0.0	80.3	1.7	133 Btuh
8	Frame - Wood - Ext	0.09	13.0/0.0	26.7	2.3	60 Btuh
9	Frame - Wood - Ext	0.09	13.0/0.0	53.0	2.3	120 Btuh
10	Frame - Wood - Ext	0.09	13.0/0.0	26.7	2.3	60 Btuh
11	Frame - Wood - Ext	0.08	19.0/0.0	354.3	1.7	586 Btuh
12	Frame - Wood - Ext	0.08	19.0/0.0	107.3	1.7	177 Btuh
13	Frame - Wood - Ext	0.08	19.0/0.0	48.0	1.7	79 Btuh
14	Frame - Wood - Ext	0.08	19.0/0.0	130.7	1.7	216 Btuh
15	Frame - Wood - Ext	0.08	19.0/0.0	10.0	1.7	17 Btuh
16	Frame - Wood - Ext	0.08	19.0/0.0	16.3	1.7	27 Btuh
17	Frame - Wood - Ext	0.08	19.0/0.0	10.0	1.7	17 Btuh
18	Frame - Wood - Ext	0.08	19.0/0.0	130.7	1.7	216 Btuh
19	Frame - Wood - Ext	0.08	19.0/0.0	60.0	1.7	99 Btuh
20	Frame - Wood - Ext	0.08	19.0/0.0	124.0	1.7	205 Btuh
21	Frame - Wood - Ext	0.08	19.0/0.0	332.2	1.7	549 Btuh
22	Frame - Wood - Ext	0.08	19.0/0.0	33.6	1.7	55 Btuh
23	Frame - Wood - Ext	0.08	19.0/0.0	22.3	1.7	37 Btuh
	Wall Total			1989 (sqft)		3354 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Andrew Nettles | Project Title: 231515 Nettles | Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2024-01-03

Doors	Type			Area (sqft)	HTM	Load
1	Insulated - Exterior			5.3	12.0	64 Btuh
2	Insulated - Exterior			32.0	12.0	384 Btuh
3	Insulated - Exterior			21.3	12.0	256 Btuh
4	Insulated - Exterior			48.0	12.0	576 Btuh
5	Insulated - Exterior			24.0	12.0	288 Btuh
6	Insulated - Exterior			16.0	12.0	192 Btuh
	Door Total			147 (sqft)		1760 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.025	38.0/0.0	2514.0	1.37	3446 Btuh
2	Knee wall to attic/DarkShingle	0.025	38.0/0.0	863.0	1.37	1183 Btuh
	Ceiling Total			3377 (sqft)		4628 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2514 (ft-perimeter)	0.0	0 Btuh
	Floor Total			2514.0 (sqft)		0 Btuh
				Envelope Subtotal:		14630 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.19	28031	1	87.8	1830 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		4	X 230	+	3400	4320 Btuh
				Sensible Envelope Load:		20779 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.339)		7039 Btuh
				Sensible Load All Zones		**27818 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Andrew Nettles

Project Title: 231515 Nettles

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2024-01-03

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**20779**	**Btuh**
	Sensible Duct Load	7039	Btuh
	Total Sensible Zone Loads	**27818**	**Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0	Btuh
	Blower	0	Btuh
	Total sensible gain	**27818**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	3036	Btuh
	Latent ventilation gain	0	Btuh
	Latent duct gain	1460	Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800	Btuh
	Latent other gain	0	Btuh
	Latent total gain	**5296**	**Btuh**
	TOTAL GAIN	**33114**	**Btuh**

EQUIPMENT

1. Central Unit	#	44000 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