FORM R405-2017

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	Otero Residence	Builder Name:	
Street:		Permit Office:	Columbia County
City, State, Zip:	Lake City , FL , 32055	Permit Number:	
Owner:	Al & Serana Otero	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	Single-family
3. Number of units, if multiple family	1
4. Number of Bedrooms	3
5. Is this a worst case?	No
6. Conditioned floor area above grade (ft²)	3465
Conditioned floor area below grade (ft²)	0

7. Windows (453.9 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.36	453.92 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:		4.427 ft.
Area Weighted Average SHGC:		0.250

8. Floor Types (3465.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	2993.00 ft²
b. Floor over Garage	R=19.0	472.00 ft²
c. N/A	R=	ft²

9. Wall Types (3314.2 sqft.)	Insulation	Area
a. Frame - Wood, Exterior	R=13.0	3179.20 ft²
b. Frame - Wood, Adjacent	R=13.0	135.00 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

10. Ceiling Types (3639.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=38.0	3639.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Attic, Ret: Attic, AH: Main	6	866.25

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	39.7	SEER:14.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	52.5	HSPF:8.20

14. Hot water systems	
a. Electric	Cap: 50 gallons
	EF: 0.920
b. Conservation features	
None	
15. Credits	CV, Pstat

Glass/Floor Area: 0.131

Total Proposed Modified Loads: 83.43

Total Baseline Loads: 87.03

PASS

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

PREPARED BY: _____

DATE: 10/27/2020

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

OWNER/AGENT: _____

DATE: 11-2-2020

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.

- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 5.00 ACH50 (R402.4.1.2).

FORM R405-2017

INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	Otero Residence	Bedrooms:	3	Address Type:	Lot Information
Building Type:	User	Conditioned Area:	3465	Lot #	6
Owner Name:	Al & Serana Otero	Total Stories:	2	Block/Subdivision:	West Paces
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:		Rotate Angle:	0	Street:	
Permit Office:	Columbia County	Cross Ventilation:	Yes	County:	Columbia
Jurisdiction:		Whole House Fan:	No	City, State, Zip:	Lake City , FL , 32055
Family Type:	Single-family				
New/Existing:	New (From Plans)				
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_REGI	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	3465	30713

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	2993	26937	Yes	8	3	1	Yes	Yes	Yes
2	2nd Floor	472	3776	No	2	0	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulation	Main	310.6667 ft	0	2993 ft²	----	0	0	1
_____	2	Floor over Garage	2nd Floor	----	----	472 ft²	19	0	0	1

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	4165 ft²	1156 ft²	Medium	Y	0.96	No	0.9	No	0	33.7

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Partial cathedral ceili	Vented	300	3465 ft²	Y	N

INPUT SUMMARY CHECKLIST REPORT

CEILING

√	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	38	Double Batt	3143 ft²	0.11	Wood
_____	2	Under Attic (Vented)	2nd Floor	38	Double Batt	496 ft²	0.11	Wood

WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
____	1	SE	Exterior	Frame - Wood	Main	13	5	3	9		47.3 ft²		0.23	0.75	0
____	2	S	Exterior	Frame - Wood	Main	13	13	9	9		123.8 ft²		0.23	0.75	0
____	3	W	Exterior	Frame - Wood	Main	13	10	8	10		106.7 ft²		0.23	0.75	0
____	4	S	Exterior	Frame - Wood	Main	13	14		9		126.0 ft²		0.23	0.75	0
____	5	E	Exterior	Frame - Wood	Main	13	6		10		60.0 ft²		0.23	0.75	0
____	6	S	Exterior	Frame - Wood	Main	13	19	4	9		174.0 ft²		0.23	0.75	0
____	7	E	Exterior	Frame - Wood	Main	13	8		9		72.0 ft²		0.23	0.75	0
____	8	S	Exterior	Frame - Wood	Main	13	12	8	9		114.0 ft²		0.23	0.75	0
____	9	E	Exterior	Frame - Wood	Main	13	40		9		360.0 ft²		0.23	0.75	0
____	10	N	Exterior	Frame - Wood	Main	13	13		9		117.0 ft²		0.23	0.75	0
____	11	W	Exterior	Frame - Wood	Main	13	12		9		108.0 ft²		0.23	0.75	0
____	12	N	Exterior	Frame - Wood	Main	13	35		9		315.0 ft²		0.23	0.75	0
____	13	E	Exterior	Frame - Wood	Main	13	24	8	9		222.0 ft²		0.23	0.75	0
____	14	N	Exterior	Frame - Wood	Main	13	16	4	9		147.0 ft²		0.23	0.75	0
____	15	W	Exterior	Frame - Wood	Main	13	17	4	9		156.0 ft²		0.23	0.75	0
____	16	N	Exterior	Frame - Wood	Main	13	4		9		36.0 ft²		0.23	0.75	0
____	17	W	Exterior	Frame - Wood	Main	13	12		9		108.0 ft²		0.23	0.75	0
____	18	S	Exterior	Frame - Wood	Main	13	4		9		36.0 ft²		0.23	0.75	0
____	19	W	Exterior	Frame - Wood	Main	13	11		10		110.0 ft²		0.23	0.75	0
____	20	NW	Exterior	Frame - Wood	Main	13	13	10	9		124.5 ft²		0.23	0.75	0
____	21	SW	Garage	Frame - Wood	Main	13	15		9		135.0 ft²		0.23	0.75	0
____	22	SW	Exterior	Frame - Wood	2nd Floor	13	14	6	8		116.0 ft²		0.23	0.75	0
____	23	SE	Exterior	Frame - Wood	2nd Floor	13	25		8		200.0 ft²		0.23	0.75	0
____	24	NW	Exterior	Frame - Wood	2nd Floor	13	25		8		200.0 ft²		0.23	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	S	Insulated	Main	None	.46	3		6	8	20 ft²
_____	2	SW	Insulated	Main	None	.46	3		6	8	20 ft²

INPUT SUMMARY CHECKLIST REPORT

WINDOWS

Orientation shown is the entered, Proposed orientation.

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	S	2	TIM	Low-E Double	Yes	0.36	0.25	N	20.0 ft²	5 ft 6 in	1 ft 0 in	None	None
_____	2	S	4	Vinyl	Low-E Double	Yes	0.36	0.25	N	42.0 ft²	1 ft 0 in	2 ft 0 in	None	None
_____	3	S	6	TIM	Low-E Double	Yes	0.36	0.25	N	6.7 ft²	7 ft 0 in	1 ft 0 in	None	None
_____	4	S	6	Vinyl	Low-E Double	Yes	0.36	0.25	N	30.0 ft²	7 ft 0 in	1 ft 0 in	None	None
_____	5	S	8	Vinyl	Low-E Double	Yes	0.36	0.25	N	30.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	6	E	9	Vinyl	Low-E Double	Yes	0.36	0.25	N	8.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	7	N	10	Vinyl	Low-E Double	Yes	0.36	0.25	N	30.0 ft²	1 ft 0 in	2 ft 0 in	None	None
_____	8	N	12	TIM	Low-E Double	Yes	0.36	0.25	N	80.0 ft²	11 ft 6 in	1 ft 0 in	None	None
_____	9	N	12	Vinyl	Low-E Double	Yes	0.36	0.25	N	24.0 ft²	11 ft 6 in	1 ft 0 in	None	None
_____	10	E	13	TIM	Low-E Double	Yes	0.36	0.25	N	20.0 ft²	5 ft 0 in	1 ft 0 in	None	None
_____	11	N	14	Vinyl	Low-E Double	Yes	0.36	0.25	N	30.0 ft²	1 ft 0 in	2 ft 0 in	None	None
_____	12	W	15	Vinyl	Low-E Double	Yes	0.36	0.25	N	20.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	13	W	17	Vinyl	Low-E Double	Yes	0.36	0.25	N	12.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	14	W	19	Vinyl	Low-E Double	Yes	0.36	0.25	N	8.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	15	NW	20	Vinyl	Low-E Double	Yes	0.36	0.25	N	37.5 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	16	SW	22	Vinyl	Low-E Double	Yes	0.36	0.25	N	16.8 ft²	1 ft 0 in	2 ft 0 in	None	None
_____	17	SE	23	Vinyl	Low-E Double	Yes	0.36	0.25	N	7.0 ft²	1 ft 0 in	2 ft 0 in	None	None
_____	18	NW	24	Vinyl	Low-E Double	Yes	0.36	0.25	N	32.0 ft²	1 ft 6 in	0 ft 6 in	None	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
_____	1	650 ft²	650 ft²	89 ft	9 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000282	2559.4	140.51	264.25	.1457	5

HEATING SYSTEM

√	#	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump/	None	Single	HSPF:8.2	52.49 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit/	None	Single	SEER: 14	39.74 kBtu/hr	1200 cfm	0.7	1	sys#1

FORM R405-2017

INPUT SUMMARY CHECKLIST REPORT

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Main	0.92	50 gal	40 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	Cool
_____	1	Attic	6	866.25 f	Attic	173.25 f	Default Leakage	Main	(Default) c	(Default) c			1	1

TEMPERATURES

Programable Thermostat: Y Ceiling Fans:

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

Thermostat Schedule: HERS 2006 Reference

Schedule Type		Hours 1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	80	80	80	80
	PM	80	80	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66
Heating (WEH)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66

MASS

Mass Type	Area	Thickness	Furniture Fraction	Space
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	Main
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	2nd Floor

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 96

The lower the Energy Performance Index, the more efficient the home.

1. New home or, addition	1. New (From Plans)
2. Single-family or multiple-family	2. Single-family
3. No. of units (if multiple-family)	3. 1
4. Number of bedrooms	4. 3
5. Is this a worst case? (yes/no)	5. No
6. Conditioned floor area (sq. ft.)	6. 3465
7. Windows, type and area	
a) U-factor:(weighted average)	7a. 0.360
b) Solar Heat Gain Coefficient (SHGC)	7b. 0.250
c) Area	7c. 453.9
8. Skylights	
a) U-factor:(weighted average)	8a. NA
b) Solar Heat Gain Coefficient (SHGC)	8b. NA
9. Floor type, insulation level:	
a) Slab-on-grade (R-value)	9a. 0.0
b) Wood, raised (R-value)	9b. 19.0
c) Concrete, raised (R-value)	9c.
10. Wall type and insulation:	
A. Exterior:	
1. Wood frame (Insulation R-value)	10A1. 13.0
2. Masonry (Insulation R-value)	10A2.
B. Adjacent:	
1. Wood frame (Insulation R-value)	10B1. 13.0
2. Masonry (Insulation R-value)	10B2.
11. Ceiling type and insulation level	
a) Under attic	11a. 38.0
b) Single assembly	11b.
c) Knee walls/skylight walls	11c.
d) Radiant barrier installed	11d. Yes

12. Ducts, location & insulation level	
a) Supply ducts	R 6.0
b) Return ducts	R 6.0
c) AHU location	Main
13. Cooling system:	Capacity 39.7
a) Split system	SEER
b) Single package	SEER
c) Ground/water source	SEER/COP
d) Room unit/PTAC	EER
e) Other	14.0
14. Heating system:	Capacity 52.5
a) Split system heat pump	HSPF
b) Single package heat pump	HSPF
c) Electric resistance	COP
d) Gas furnace, natural gas	AFUE
e) Gas furnace, LPG	AFUE
f) Other	8.20
15. Water heating system	
a) Electric resistance	EF 0.92
b) Gas fired, natural gas	EF
c) Gas fired, LPG	EF
d) Solar system with tank	EF
e) Dedicated heat pump with tank	EF
f) Heat recovery unit	HeatRec%
g) Other	
16. HVAC credits claimed (Performance Method)	
a) Ceiling fans	
b) Cross ventilation	Yes
c) Whole house fan	No
d) Multizone cooling credit	
e) Multizone heating credit	
f) Programmable thermostat	Yes

*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

I certify that this home has complied with the Florida Building Code, Energy Conservation, 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 32055

Envelope Leakage Test Report (Blower Door Test)

Residential Prescriptive, Performance or ERI Method Compliance
2017 Florida Building Code, Energy Conservation, 6th Edition

Jurisdiction:	Permit #:

Job Information

Builder: Community: Lot: 6

Address:

City: Lake City State: FL Zip: 32055

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 R405-2017 (Performance) or R406-2017 (ERI), section labeled as infiltration, sub-section ACH50.

ACH(50) specified on Form R405-2017-Energy Calc (Performance) or R406-2017 (ERI): 5.000

_____ x 60 ÷ 30713 = _____
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. 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.

Testing Company

Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2017 6th 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

Al & Serana Otero

Lake City, FL 32055

Project Title:
Otero Residence

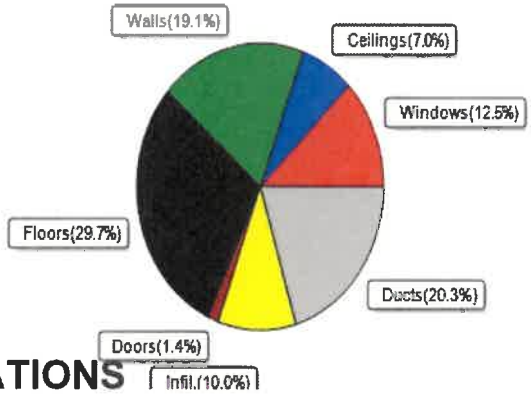
10/27/2020

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	**52494**	**Btuh**	**Total cooling load calculation**	**39573**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	52494	Sensible (SHR = 0.70)	86.7	27818
Heat Pump + Auxiliary(0.0kW)	100.0	52494	Latent	159.2	11922
			Total (Electric Heat Pump)	100.4	39740

WINTER CALCULATIONS

Winter Heating Load (for 3465 sqft)

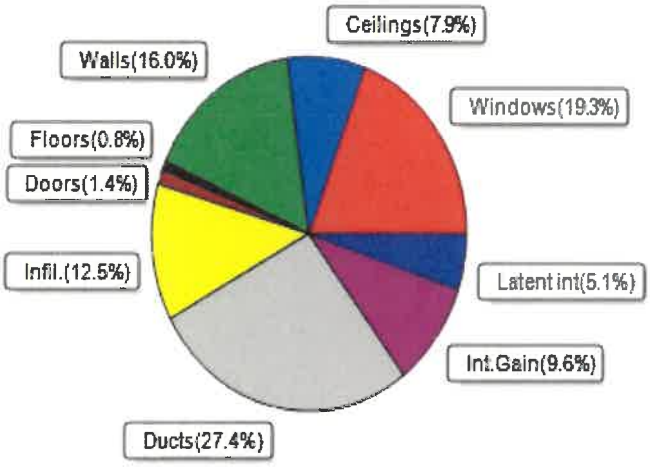
Load component			Load	
Window total	454	sqft	6536	Btuh
Wall total	2820	sqft	10013	Btuh
Door total	40	sqft	736	Btuh
Ceiling total	3639	sqft	3694	Btuh
Floor total	See detail report		15610	Btuh
Infiltration	119	cfm	5224	Btuh
Duct loss			10681	Btuh
Subtotal			**52494**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**52494**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 3465 sqft)

Load component			Load	
Window total	454	sqft	7654	Btuh
Wall total	2820	sqft	6317	Btuh
Door total	40	sqft	552	Btuh
Ceiling total	3639	sqft	3140	Btuh
Floor total			331	Btuh
Infiltration	89	cfm	1861	Btuh
Internal gain			3800	Btuh
Duct gain			8429	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**32084**	**Btuh**
Latent gain(ducts)			2401	Btuh
Latent gain(infiltration)			3088	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2000	Btuh
Total latent gain			**7489**	**Btuh**
TOTAL HEAT GAIN			**39573**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 10/27/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Al & Serana Otero
Lake City, FL 32055

Project Title:
Otero Residence
Building Type: User

10/27/2020

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

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0.25	TIM	0.36	S	20.0	14.4	288 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	42.0	14.4	605 Btuh
3	2, NFRC 0.25	TIM	0.36	S	6.7	14.4	96 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	30.0	14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	S	30.0	14.4	432 Btuh
6	2, NFRC 0.25	Vinyl	0.36	E	8.0	14.4	115 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	30.0	14.4	432 Btuh
8	2, NFRC 0.25	TIM	0.36	N	80.0	14.4	1152 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	24.0	14.4	346 Btuh
10	2, NFRC 0.25	TIM	0.36	E	20.0	14.4	288 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	30.0	14.4	432 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	20.0	14.4	288 Btuh
13	2, NFRC 0.25	Vinyl	0.36	W	12.0	14.4	173 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	8.0	14.4	115 Btuh
15	2, NFRC 0.25	Vinyl	0.36	NW	37.5	14.4	540 Btuh
16	2, NFRC 0.25	Vinyl	0.36	SW	16.8	14.4	241 Btuh
17	2, NFRC 0.25	Vinyl	0.36	SE	7.0	14.4	101 Btuh
18	2, NFRC 0.25	Vinyl	0.36	NW	32.0	14.4	461 Btuh
	Window Total				453.9(sqft)		6536 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	47	3.55	168 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	104	3.55	368 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	107	3.55	379 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	84	3.55	298 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	60	3.55	213 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	117	3.55	417 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	72	3.55	256 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	84	3.55	298 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	352	3.55	1250 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	87	3.55	309 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	108	3.55	383 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	211	3.55	749 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	202	3.55	717 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	117	3.55	415 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	136	3.55	483 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	36	3.55	128 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	96	3.55	341 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	36	3.55	128 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	102	3.55	362 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	87	3.55	309 Btuh
21	Frame - Wood	- Adj	(0.089)	13.0/0.0	115	3.55	408 Btuh
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	99	3.55	352 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	193	3.55	685 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Al & Serana Otero
Lake City, FL 32055

Project Title:
Otero Residence
Building Type: User

10/27/2020

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
24	Frame - Wood	- Ext	(0.089)	13.0/0.0	168	3.55	596 Btuh
	Wall Total				2820(sqft)		10013 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20	18.4	368 Btuh
2	Insulated - Garage,	n	(0.460)		20	18.4	368 Btuh
	Door Total				40(sqft)		736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	3143	1.0	3191 Btuh
2	Vented Attic/L/Shing		(0.025)	38.0/0.0	496	1.0	504 Btuh
	Ceiling Total				3639(sqft)		3694Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	310.7 ft(perim.)	47.2	14663 Btuh
2	Raised Wood - Adj		(0.050)	19.0	472.0 sqft	2.0	947 Btuh
	Floor Total				3465 sqft		15610 Btuh
					Envelope Subtotal:		36590 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.23	30713	1.00	119.3	5224 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.255)	10681 Btuh
All Zones					**Sensible Subtotal All Zones**		**52494 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	52494 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	52494 Btuh

EQUIPMENT

1. Electric Heat Pump	#	52494 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Al & Serana Otero

Lake City, FL 32055

Project Title:
Otero Residence
Building Type: User

10/27/2020

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

Al & Serana Otero

Project Title:
Otero Residence

Lake City, FL 32055

10/27/2020

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

Component Loads for Whole House

	Type*					Overhang		Window Area(sqft)			HTM		Load
Window	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
1	2 NFRC	0.25, 0.36		No	No	S	5.5ft.	1.0ft.	20.0	20.0	0.0	12	14	242 Btuh
2	2 NFRC	0.25, 0.36		No	No	S	1.0ft.	2.0ft.	42.0	22.1	19.9	12	14	547 Btuh
3	2 NFRC	0.25, 0.36		No	No	S	7.0ft.	1.0ft.	6.7	6.7	0.0	12	14	81 Btuh
4	2 NFRC	0.25, 0.36		No	No	S	7.0ft.	1.0ft.	30.0	30.0	0.0	12	14	363 Btuh
5	2 NFRC	0.25, 0.36		No	No	S	1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363 Btuh
6	2 NFRC	0.25, 0.36		No	No	E	1.5ft.	1.0ft.	8.0	1.0	7.0	12	31	229 Btuh
7	2 NFRC	0.25, 0.36		No	No	N	1.0ft.	2.0ft.	30.0	0.0	30.0	12	12	363 Btuh
8	2 NFRC	0.25, 0.36		No	No	N	11.5f	1.0ft.	80.0	0.0	80.0	12	12	968 Btuh
9	2 NFRC	0.25, 0.36		No	No	N	11.5f	1.0ft.	24.0	0.0	24.0	12	12	290 Btuh
10	2 NFRC	0.25, 0.36		No	No	E	5.0ft.	1.0ft.	20.0	9.4	10.6	12	31	441 Btuh
11	2 NFRC	0.25, 0.36		No	No	N	1.0ft.	2.0ft.	30.0	0.0	30.0	12	12	363 Btuh
12	2 NFRC	0.25, 0.36		No	No	W	1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600 Btuh
13	2 NFRC	0.25, 0.36		No	No	W	1.5ft.	1.0ft.	12.0	1.5	10.5	12	31	344 Btuh
14	2 NFRC	0.25, 0.36		No	No	W	1.5ft.	1.0ft.	8.0	1.0	7.0	12	31	229 Btuh
15	2 NFRC	0.25, 0.36		No	No	NW	1.5ft.	1.0ft.	37.5	0.0	37.5	12	24	886 Btuh
16	2 NFRC	0.25, 0.36		No	No	SW	1.0ft.	2.0ft.	16.8	0.0	16.8	12	25	415 Btuh
17	2 NFRC	0.25, 0.36		No	No	SE	1.0ft.	2.0ft.	7.0	0.0	7.0	12	25	173 Btuh
18	2 NFRC	0.25, 0.36		No	No	NW	1.5ft.	0.5ft.	32.0	0.0	32.0	12	24	756 Btuh
	Window Total								454 (sqft)					7654 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.09	13.0/0.0	47.3	2.3	107 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	103.8	2.3	235 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	106.7	2.3	241 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	84.0	2.3	190 Btuh
5	Frame - Wood - Ext	0.09	13.0/0.0	60.0	2.3	136 Btuh
6	Frame - Wood - Ext	0.09	13.0/0.0	117.3	2.3	266 Btuh
7	Frame - Wood - Ext	0.09	13.0/0.0	72.0	2.3	163 Btuh
8	Frame - Wood - Ext	0.09	13.0/0.0	84.0	2.3	190 Btuh
9	Frame - Wood - Ext	0.09	13.0/0.0	352.0	2.3	797 Btuh
10	Frame - Wood - Ext	0.09	13.0/0.0	87.0	2.3	197 Btuh
11	Frame - Wood - Ext	0.09	13.0/0.0	108.0	2.3	244 Btuh
12	Frame - Wood - Ext	0.09	13.0/0.0	211.0	2.3	478 Btuh
13	Frame - Wood - Ext	0.09	13.0/0.0	202.0	2.3	457 Btuh
14	Frame - Wood - Ext	0.09	13.0/0.0	117.0	2.3	265 Btuh
15	Frame - Wood - Ext	0.09	13.0/0.0	136.0	2.3	308 Btuh
16	Frame - Wood - Ext	0.09	13.0/0.0	36.0	2.3	81 Btuh
17	Frame - Wood - Ext	0.09	13.0/0.0	96.0	2.3	217 Btuh
18	Frame - Wood - Ext	0.09	13.0/0.0	36.0	2.3	81 Btuh
19	Frame - Wood - Ext	0.09	13.0/0.0	102.0	2.3	231 Btuh
20	Frame - Wood - Ext	0.09	13.0/0.0	87.0	2.3	197 Btuh
21	Frame - Wood - Adj	0.09	13.0/0.0	115.0	1.7	194 Btuh
22	Frame - Wood - Ext	0.09	13.0/0.0	99.3	2.3	225 Btuh
23	Frame - Wood - Ext	0.09	13.0/0.0	193.0	2.3	437 Btuh
24	Frame - Wood - Ext	0.09	13.0/0.0	168.0	2.3	380 Btuh
	Wall Total			2820 (sqft)		6317 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20.0	13.8	276 Btuh
2	Insulated - Garage	20.0	13.8	276 Btuh
	Door Total	40 (sqft)		552 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Al & Serana Otero
Lake City, FL 32055

Project Title: Otero Residence
Climate:FL_GAINESVILLE_REGIONAL_A

10/27/2020

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/Light/Shingle/RB	0.025	38.0/0.0	3143.0	0.86	2712 Btuh
2	Vented Attic/Light/Shingle/RB	0.025	38.0/0.0	496.0	0.86	428 Btuh
	Ceiling Total			3639 (sqft)		3140 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2993 (ft-perimeter)	0.0	0 Btuh
2	Raised Wood - Adj		19.0	472 (sqft)	0.7	331 Btuh
	Floor Total			3465.0 (sqft)		331 Btuh
				Envelope Subtotal:		17994 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.17	30713	1	89.5	1861 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		10	X 230	+	1500	3800 Btuh
				Sensible Envelope Load:		23655 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.356)		8429 Btuh
				Sensible Load All Zones		**32084 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Al & Serana Otero
Lake City, FL 32055

Project Title: Otero Residence
Climate:FL_GAINESVILLE_REGIONAL_A

10/27/2020

WHOLE HOUSE TOTALS

	Sensible Envelope Load All Zones	**23655 Btuh**
	Sensible Duct Load	8429 Btuh
	Total Sensible Zone Loads	**32084 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
Whole House	**Total sensible gain**	**32084 Btuh**
Totals for Cooling	Latent infiltration gain (for 51 gr. humidity difference)	3088 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	2401 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**7489 Btuh**
	TOTAL GAIN	**39573 Btuh**

EQUIPMENT

1. Central Unit	#	39740 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