FORM R405-2020

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	160 SW Orange Blossom	Builder Name:	
Street:	160 SW Orange Blossom	Permit Office:	Columbia County
City, State, Zip:	Lake City , FL , 32025	Permit Number:	
Owner:	Peter & Anna Lev	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)	1807
Conditioned floor area below grade (ft²)	0

7. Windows (216.3 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.36	216.33 ft²
SHGC:	SHGC=0.25	
b. U-Factor:	N/A	ft²
SHGC:		
c. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		2.813 ft.
Area Weighted Average SHGC:		0.250

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

9. Floor Types (1807.0 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1807.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

10. Wall Types(1751.6 sqft.)	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=5.0	1477.80 ft²
b. Frame - Wood, Adjacent	R=13.0	273.78 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

11. Ceiling Types (1897.0 sqft.)	Insulation	Area
a. Under Attic (Vented)	R=38.0	1897.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

12. Ducts	R	ft²
a. Sup: Attic, Ret: Attic, AH: Garage	6	451.75

13. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	20.5	SEER:14.00

14. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	29.5	HSPF:8.20

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

Glass/Floor Area: 0.120

Total Proposed Modified Loads: 47.45

Total Baseline Loads: 48.60

PASS

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

PREPARED BY: _____

DATE: 8/30/2021

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.

- 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 R405-2020

INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	160 SW Orange Blossom	Bedrooms:	3	Address Type:	Street Address
Building Type:	User	Conditioned Area:	1807	Lot #	
Owner Name:	Peter & Anna Lev	Total Stories:	1	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:		Rotate Angle:	0	Street:	160 SW Orange Blosso
Permit Office:	Columbia County	Cross Ventilation:	Yes	County:	Columbia
Jurisdiction:		Whole House Fan:	No	City, State, Zip:	Lake City ,
Family Type:	Detached				FL , 32025
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	1807	16859.3

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	1807	16859.3	Yes	6	3	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	R-Value	Area		Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulation	Main	188.67 ft	0	1807 ft²	----	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	Hip	Metal	2172 ft²	0 ft²	Light	Y	0.96	No	0.9	No	0	33.69

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	1807 ft²	Y	N

CEILING

√	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	38	Double Batt	1897 ft²	0.11	Wood

FORM R405-2020

INPUT SUMMARY CHECKLIST REPORT

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	S	Exterior	Concrete Block - Int Insul	Main	5	12		9	4	112.0 ft²		0	0.75	0
____	2	S	Exterior	Concrete Block - Int Insul	Main	5	28	8	9	4	267.6 ft²		0	0.75	0
____	3	E	Garage	Frame - Wood	Main	13	7	4	9	4	68.4 ft²		0.23	0.75	0
____	4	S	Garage	Frame - Wood	Main	13	22		9	4	205.3 ft²		0.23	0.75	0
____	5	E	Exterior	Concrete Block - Int Insul	Main	5	23	4	9	4	217.8 ft²		0	0.75	0
____	6	N	Exterior	Concrete Block - Int Insul	Main	5	62	8	9	4	584.9 ft²		0	0.75	0
____	7	W	Exterior	Concrete Block - Int Insul	Main	5	31	8	9	4	295.6 ft²		0	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	E	Insulated	Main	None	.46	3		6	8	20 ft²

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	1	Vinyl	Low-E Double	Yes	0.36	0.25	N	30.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	2	S	2	TIM	Low-E Double	Yes	0.36	0.25	N	13.3 ft²	7 ft 6 in	1 ft 0 in	None	None
_____	3	S	2	Vinyl	Low-E Double	Yes	0.36	0.25	N	25.0 ft²	7 ft 6 in	1 ft 0 in	None	None
_____	4	S	2	Vinyl	Low-E Double	Yes	0.36	0.25	N	9.0 ft²	7 ft 6 in	1 ft 0 in	None	None
_____	5	E	5	Vinyl	Low-E Double	Yes	0.36	0.25	N	20.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	6	N	6	Vinyl	Low-E Double	Yes	0.36	0.25	N	60.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	7	N	6	Vinyl	Low-E Double	Yes	0.36	0.25	N	6.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	8	N	6	Vinyl	Low-E Double	Yes	0.36	0.25	N	9.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	9	N	6	TIM	Low-E Double	Yes	0.36	0.25	N	40.0 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	10	W	7	Vinyl	Low-E Double	Yes	0.36	0.25	N	4.0 ft²	1 ft 6 in	1 ft 0 in	None	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
_____	1	491.26 ft²	491.26 ft²	58.33 ft	9.33 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000296	1404.9	77.08	144.71	.1042	5

FORM R405-2020

INPUT SUMMARY CHECKLIST REPORT

HEATING SYSTEM

√	#	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump/	None	Single	HSPF:8.2	29.51 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	20.55 kBtu/hr	630 cfm	0.7	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Garage	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	451.75 f	Attic	90.35 ft²	Default Leakage	Garage	(Default) c	(Default) c			1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

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

Thermostat Schedule: HERS 2006 Reference

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

MASS

Mass Type	Area	Thickness	Furniture Fraction	Space
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	1st Floor
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	2nd Floor

FORM R405-2020

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 98

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

160 SW Orange Blossom, Lake City, FL, 32025

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 (ft²)		1807
7. Windows**	Description	Area
a. U-Factor:	Dbl, U=0.36	216.33 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:		2.813 ft.
Area Weighted Average SHGC:		0.250
8. Skylights	Description	Area
a. U-Factor(AVG):	N/A	ft²
SHGC(AVG):	N/A	
9. Floor Types	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1807.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

10. Wall Type and Insulation	Insulation	Area
a. Concrete Block - Int Insul, Exterior	R=5.0	1477.80 ft²
b. Frame - Wood, Adjacent	R=13.0	273.78 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²
11. Ceiling Type and insulation level	Insulation	Area
a. Under Attic (Vented)	R=38.0	1897.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
12. Ducts, location & insulation level	R	ft²
a. Sup: Attic, Ret: Attic, AH: Garage	6	451.75
13. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	20.5	SEER:14.00
14. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	29.5	HSPF:8.20
15. Hot water systems		
a. Electric		Cap: 50 gallons
		EF: 0.92
b. Conservation features		
None		
Credits (Performance method)		CV, Pstat

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

Builder Signature: _____ Date: _____

Address of New Home: _____ City/FL Zip: _____

*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida 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.

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction:	Permit #:

Job Information

Builder: Community: Lot: NA

Address: 160 SW Orange Blossom

City: Lake City State: FL Zip: 32025

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 R405-2020 (Performance) or R406-2020 (ERI), section labeled as infiltration, sub-section ACH50.

ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI): 5.000

_____ x 60 ÷ 16859 = _____
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 2020 7th 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

Peter & Anna Lev
160 SW Orange Blossom
Lake City, FL 32025

Project Title:
160 SW Orange Blossom

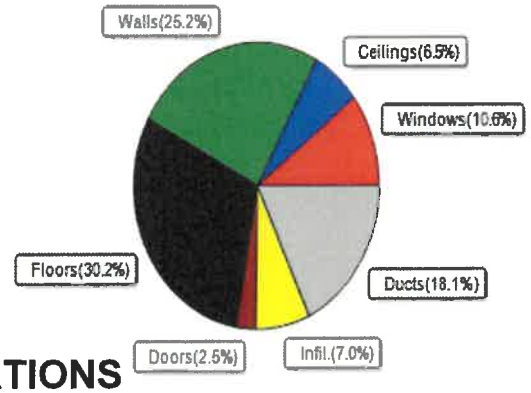
8/30/2021

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	**29510**	**Btuh**	**Total cooling load calculation**	**20549**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	29510	Sensible (SHR = 0.70)	85.9	14385
Heat Pump + Auxiliary(0.0kW)	100.0	29510	Latent	162.1	6165
			Total (Electric Heat Pump)	100.0	20549

WINTER CALCULATIONS

Winter Heating Load (for 1807 sqft)

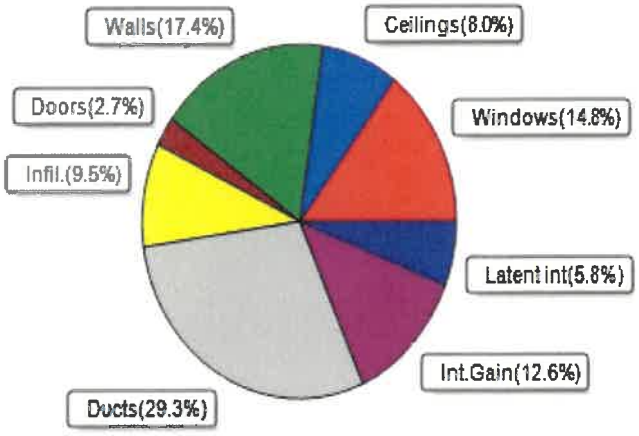
Load component			Load	
Window total	216	sqft	3115	Btuh
Wall total	1495	sqft	7434	Btuh
Door total	40	sqft	736	Btuh
Ceiling total	1897	sqft	1926	Btuh
Floor total	1807	sqft	8905	Btuh
Infiltration	47	cfm	2051	Btuh
Duct loss			5342	Btuh
Subtotal			**29510**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**29510**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1807 sqft)

Load component			Load	
Window total	216	sqft	3033	Btuh
Wall total	1495	sqft	3580	Btuh
Door total	40	sqft	552	Btuh
Ceiling total	1897	sqft	1637	Btuh
Floor total			0	Btuh
Infiltration	35	cfm	731	Btuh
Internal gain			2580	Btuh
Duct gain			4635	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**16747**	**Btuh**
Latent gain(ducts)			1390	Btuh
Latent gain(infiltration)			1213	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**3802**	**Btuh**
TOTAL HEAT GAIN			**20549**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 8/30/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Peter & Anna Lev
160 SW Orange Blossom
Lake City, FL 32025

Project Title:
160 SW Orange Blossom
Building Type: User

8/30/2021

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	Vinyl	0.36	S	30.0	14.4	432 Btuh
2	2, NFRC 0.25	TIM	0.36	S	13.3	14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	25.0	14.4	360 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	9.0	14.4	130 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	20.0	14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	60.0	14.4	864 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	6.0	14.4	86 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	9.0	14.4	130 Btuh
9	2, NFRC 0.25	TIM	0.36	N	40.0	14.4	576 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	4.0	14.4	58 Btuh
	Window Total				216.3(sqft)		3115 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Conc Blk,Hollow	- Ext	(0.132)	5.0/0.0	82	5.26	432 Btuh
2	Conc Blk,Hollow	- Ext	(0.132)	5.0/0.0	200	5.26	1054 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	48	3.55	172 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	205	3.55	729 Btuh
5	Conc Blk,Hollow	- Ext	(0.132)	5.0/0.0	198	5.26	1041 Btuh
6	Conc Blk,Hollow	- Ext	(0.132)	5.0/0.0	470	5.26	2473 Btuh
7	Conc Blk,Hollow	- Ext	(0.132)	5.0/0.0	292	5.26	1534 Btuh
	Wall Total				1495(sqft)		7434 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/Metal	(0.025)	38.0/0.0	1897	1.0	1926 Btuh
	Ceiling Total			1897(sqft)		1926Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	188.7 ft(perim.)	47.2	8905 Btuh
	Floor Total			1807 sqft		8905 Btuh

	Envelope Subtotal:	22116 Btuh

Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.17	16859	1.00	46.8	2051 Btuh

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.221)	5342 Btuh
All Zones	**Sensible Subtotal All Zones**	**29510 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Peter & Anna Lev
160 SW Orange Blossom
Lake City, FL 32025

Project Title:
160 SW Orange Blossom
Building Type: User

8/30/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	29510 Btuh 0 Btuh 29510 Btuh

EQUIPMENT

1. Electric Heat Pump	#	29510 Btuh

Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)
or - Glass as 'Clear' or 'Tint' (Uses U-Factor and SHGC defaults)
U - (Window U-Factor)
HTM - (ManualJ Heat Transfer Multiplier)

Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Peter & Anna Lev
160 SW Orange Blossom
Lake City, FL 32025

Project Title:
160 SW Orange Blossom

8/30/2021

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	1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
2	2 NFRC	0.25, 0.36		No	No	S	7.5ft.	1.0ft.	13.3	13.3	0.0	12	14	161	Btuh
3	2 NFRC	0.25, 0.36		No	No	S	7.5ft.	1.0ft.	25.0	25.0	0.0	12	14	302	Btuh
4	2 NFRC	0.25, 0.36		No	No	S	7.5ft.	1.0ft.	9.0	9.0	0.0	12	14	109	Btuh
5	2 NFRC	0.25, 0.36		No	No	E	1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh
6	2 NFRC	0.25, 0.36		No	No	N	1.5ft.	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh
7	2 NFRC	0.25, 0.36		No	No	N	1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73	Btuh
8	2 NFRC	0.25, 0.36		No	No	N	1.5ft.	1.0ft.	9.0	0.0	9.0	12	12	109	Btuh
9	2 NFRC	0.25, 0.36		No	No	N	1.5ft.	1.0ft.	40.0	0.0	40.0	12	12	484	Btuh
10	2 NFRC	0.25, 0.36		No	No	W	1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh
	Window Total								216 (sqft)					3033	Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load	
1	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	82.0	2.5	208	Btuh
2	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	200.2	2.5	508	Btuh
3	Frame - Wood - Adj	0.09	13.0/0.0	48.4	1.7	82	Btuh
4	Frame - Wood - Adj	0.09	13.0/0.0	205.3	1.7	346	Btuh
5	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	197.8	2.5	502	Btuh
6	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	469.9	2.5	1193	Btuh
7	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	291.6	2.5	740	Btuh
	Wall Total			1495 (sqft)		3580	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

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load	
1	Vented Attic/Light/Metal/RB	0.025	38.0/0.0	1897.0	0.86	1637	Btuh
	Ceiling Total			1897 (sqft)		1637	Btuh

Floors	Type	R-Value	Size	HTM	Load	
1	Slab On Grade	0.0	1807 (ft-perimeter)	0.0	0	Btuh
	Floor Total		1807.0 (sqft)		0	Btuh
			Envelope Subtotal:		8802	Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
	Natural	0.13	16859	1	35.1	731	Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load	
		6	X 230	+	1200	2580	Btuh
				Sensible Envelope Load:		12113	Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.383)		4635	Btuh
				Sensible Load All Zones		**16747**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Peter & Anna Lev
160 SW Orange Blossom
Lake City, FL 32025

Project Title: 160 SW Orange Blossom
Climate:FL_GAINESVILLE_REGIONAL_A

8/30/2021

WHOLE HOUSE TOTALS

	Sensible Envelope Load All Zones	**12113 Btuh**
	Sensible Duct Load	4635 Btuh
	Total Sensible Zone Loads	**16747 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
Whole House	**Total sensible gain**	**16747 Btuh**
Totals for Cooling	Latent infiltration gain (for 51 gr. humidity difference)	1213 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1390 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**3802 Btuh**
	TOTAL GAIN	**20549 Btuh**

EQUIPMENT

1. Central Unit	#	20549 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