

Residential System Sizing Calculation

Summary

Project Title:
Lot 14 Jewel Lake I

Lake City, FL 32025

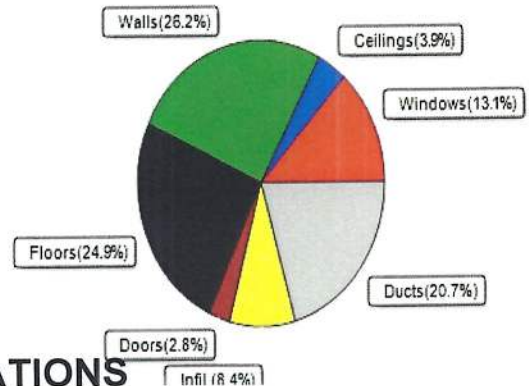
5/25/2022

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			26516	Btuh	
Total cooling load calculation			24637	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	111.8	29637	Sensible (SHR = 0.70)	64.7	12899
Heat Pump + Auxiliary(0.0kW)	111.8	29637	Latent	117.5	5528
			Total (Electric Heat Pump)	74.8	18427

WINTER CALCULATIONS

Winter Heating Load (for 1853 sqft)

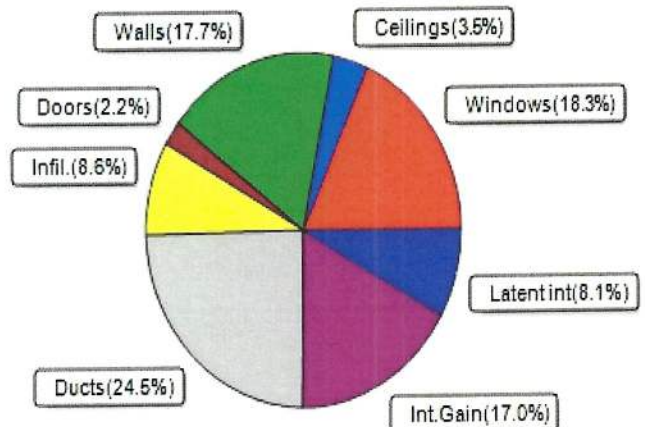
Load component		Load	
Window total	242 sqft	3485	Btuh
Wall total	1955 sqft	6942	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1011 sqft	1026	Btuh
Floor total	See detail report	6608	Btuh
Infiltration	51 cfm	2238	Btuh
Duct loss		5481	Btuh
Subtotal		26516	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		26516	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1853 sqft)

Load component		Load	
Window total	242 sqft	4502	Btuh
Wall total	1955 sqft	4359	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1011 sqft	872	Btuh
Floor total		0	Btuh
Infiltration	38 cfm	797	Btuh
Internal gain		4200	Btuh
Duct gain		4651	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		19933	Btuh
Latent gain(ducts)		1381	Btuh
Latent gain(infiltration)		1323	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		2000	Btuh
Total latent gain		4704	Btuh
TOTAL HEAT GAIN		24637	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *Will C. Fry*

DATE: 5 / 25 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Lot 14 Jewel Lake I
Building Type: User

Lake City, FL 32025

5/25/2022

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	E	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
3	2, NFRC 0.25	Vinyl	0.36	N	12.0		14.4	173 Btuh
4	2, NFRC 0.25	Vinyl	0.36	W	9.0		14.4	130 Btuh
5	2, NFRC 0.25	TIM	0.36	W	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	S	60.0		14.4	864 Btuh
7	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
8	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
11	2, NFRC 0.25	Vinyl	0.36	S	6.0		14.4	86 Btuh
12	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
Window Total					242.0(sqft)			3485 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	75		3.55	267 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	48		3.55	170 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	66		3.55	234 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	116		3.55	412 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	37		3.55	133 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	68		3.55	241 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	59		3.55	208 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	48		3.55	170 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	39		3.55	138 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	228		3.55	809 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	110		3.55	392 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	48		3.55	170 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	84		3.55	297 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	208		3.55	738 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	113		3.55	401 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	113		3.55	401 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	267		3.55	948 Btuh
Wall Total					1955(sqft)			6942 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

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 14 Jewel Lake I
Building Type: User

5/25/2022

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/L/Shing	(0.025)	38.0/0.0	77	1.0	78 Btuh
2	Vented Attic/L/Shing	(0.025)	38.0/0.0	934	1.0	948 Btuh
	Ceiling Total			1011(sqft)		1026Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	140.0 ft(perim.)	47.2	6608 Btuh
2	Interior	(1.180)	19.0	890.0 sqft	0.0	0 Btuh
	Floor Total			1853 sqft		6608 Btuh
Envelope Subtotal:						18797 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=
	Natural		0.21	14824	1.00	51.1
						2238 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.261)	5481 Btuh
All Zones	Sensible Subtotal All Zones					26516 Btuh

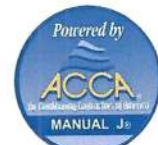
WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	26516 Btuh 0 Btuh 26516 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	29637 Btuh
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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

Project Title:
Lot 14 Jewel Lake I

Lake City, FL 32025

5/25/2022

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	No	E	7.5ft.	0.5ft.	30.0	30.0	0.0	12	31	363	Btuh		
2	2 NFRC	0.25, 0.36	No	No	No	E	1.5ft.	9.0ft.	30.0	0.0	30.0	12	31	928	Btuh		
3	2 NFRC	0.25, 0.36	No	No	No	N	1.5ft.	0.5ft.	12.0	0.0	12.0	12	12	145	Btuh		
4	2 NFRC	0.25, 0.36	No	No	No	W	1.5ft.	9.0ft.	9.0	0.0	9.0	12	31	278	Btuh		
5	2 NFRC	0.25, 0.36	No	No	No	W	9.5ft.	0.3ft.	20.0	20.0	0.0	12	31	242	Btuh		
6	2 NFRC	0.25, 0.36	No	No	No	S	1.5ft.	9.0ft.	60.0	0.0	60.0	12	14	843	Btuh		
7	2 NFRC	0.25, 0.36	No	No	No	E	1.5ft.	0.5ft.	15.0	2.2	12.8	12	31	422	Btuh		
8	2 NFRC	0.25, 0.36	No	No	No	E	1.5ft.	0.5ft.	15.0	2.2	12.8	12	31	422	Btuh		
9	2 NFRC	0.25, 0.36	No	No	No	N	1.5ft.	0.5ft.	15.0	0.0	15.0	12	12	181	Btuh		
10	2 NFRC	0.25, 0.36	No	No	No	W	1.5ft.	0.5ft.	15.0	2.2	12.8	12	31	422	Btuh		
11	2 NFRC	0.25, 0.36	No	No	No	S	1.5ft.	0.5ft.	6.0	6.0	0.0	12	14	73	Btuh		
12	2 NFRC	0.25, 0.36	No	No	No	S	1.5ft.	0.5ft.	15.0	15.0	0.0	12	14	181	Btuh		
	Window Total								242 (sqft)					4502		Btuh	
Walls	Type	U-Value			R-Value			Area(sqft)			HTM		Load				
					Cav/Sheath												
1	Frame - Wood - Ext	0.09			13.0/0.0			75.3			2.3		171		Btuh		
2	Frame - Wood - Ext	0.09			13.0/0.0			48.0			2.3		109		Btuh		
3	Frame - Wood - Ext	0.09			13.0/0.0			66.0			2.3		149		Btuh		
4	Frame - Wood - Adj	0.09			13.0/0.0			116.0			1.7		196		Btuh		
5	Frame - Wood - Ext	0.09			13.0/0.0			72.0			2.3		163		Btuh		
6	Frame - Wood - Ext	0.09			13.0/0.0			37.3			2.3		84		Btuh		
7	Frame - Wood - Ext	0.09			13.0/0.0			68.0			2.3		154		Btuh		
8	Frame - Wood - Ext	0.09			13.0/0.0			58.7			2.3		133		Btuh		
9	Frame - Wood - Ext	0.09			13.0/0.0			48.0			2.3		109		Btuh		
10	Frame - Wood - Ext	0.09			13.0/0.0			39.0			2.3		88		Btuh		
11	Frame - Wood - Ext	0.09			13.0/0.0			60.0			2.3		136		Btuh		
12	Frame - Wood - Ext	0.09			13.0/0.0			228.0			2.3		516		Btuh		
13	Frame - Wood - Ext	0.09			13.0/0.0			110.3			2.3		250		Btuh		
14	Frame - Wood - Ext	0.09			13.0/0.0			48.0			2.3		109		Btuh		
15	Frame - Wood - Ext	0.09			13.0/0.0			83.7			2.3		189		Btuh		
16	Frame - Wood - Ext	0.09			13.0/0.0			208.0			2.3		471		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			113.0			2.3		256		Btuh		
19	Frame - Wood - Ext	0.09			13.0/0.0			113.0			2.3		256		Btuh		
20	Frame - Wood - Ext	0.09			13.0/0.0			267.0			2.3		604		Btuh		
	Wall Total								1955 (sqft)					4359		Btuh	
Doors	Type	U-Value			R-Value			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 AtticLight/Shingle/RB	0.025			38.0/0.0			77.0			0.86		66		Btuh		
2	Vented AtticLight/Shingle/RB	0.025			38.0/0.0			934.0			0.86		806		Btuh		
	Ceiling Total								1011 (sqft)					872		Btuh	
Floors	Type	U-Value			R-Value			Size			HTM		Load				
1	Slab On Grade							0.0			963 (ft-perimeter)		0.0		0		Btuh
2	Interior							19.0			890 (sqft)		0.0		0		Btuh
	Floor Total								1853.0 (sqft)					0		Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 14 Jewel Lake I

Lake City, FL 32025

5/25/2022

	Envelope Subtotal:					10285 Btuh
Infiltration	Type Natural	Average ACH 0.16	Volume(cuft) 14824	Wall Ratio 1	CFM= 38.3	Load 797 Btuh
Internal gain		Occupants 10	Btuh/occupant X 230	Appliance +	1900	Load 4200 Btuh
	Sensible Envelope Load:					15282 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.304)	4651 Btuh
	Sensible Load All Zones					19933 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 14 Jewel Lake I

Lake City, FL 32025

5/25/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15282 Btuh
	Sensible Duct Load	4651 Btuh
	Total Sensible Zone Loads	19933 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19933 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1323 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1381 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4704 Btuh
	TOTAL GAIN	24637 Btuh

EQUIPMENT

1. Central Unit	#	18427 Btuh
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*Key: Window types (Panels - Number and type of panes of glass)
(SHGC - Shading coefficient of glass as SHGC numerical value)
(U - Window U-Factor)
(InSh - Interior shading device: none(No), Blinds(B), Draperies(D) or Roller Shades(R))
- For Blinds: Assume medium color, half closed
For Draperies: Assume medium weave, half closed
For Roller shades: Assume translucent, half closed
(IS - Insect screen: none(N), Full(F) or Half(½))
(Ornt - compass orientation)



Version 8