

Residential System Sizing Calculation

Summary

Project Title:
Lot 34 Jewel Lake II

Lake City, FL 32025

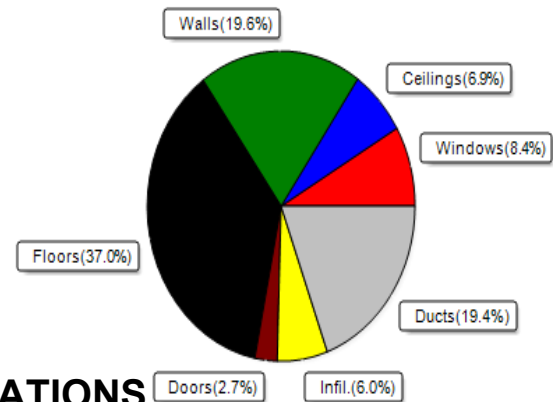
3/8/2022

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	27307 Btuh	Total cooling load calculation	20749 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 27307	Sensible (SHR = 0.70)	88.1 14786
Heat Pump + Auxiliary(0.0kW)	100.0 27307	Latent	160.0 6337
		Total (Electric Heat Pump)	101.8 21122

WINTER CALCULATIONS

Winter Heating Load (for 1776 sqft)

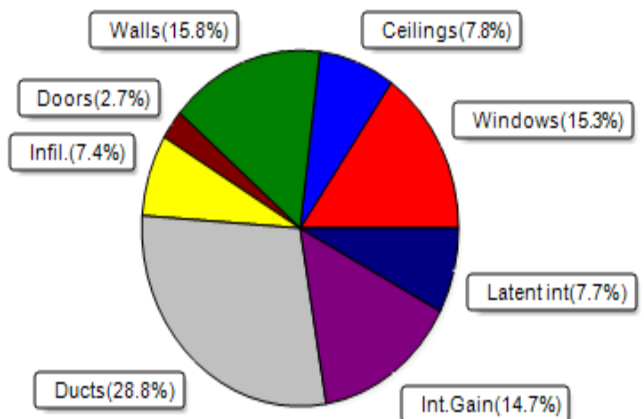
Load component		Load	
Window total	159 sqft	2294	Btuh
Wall total	1509 sqft	5356	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1865 sqft	1893	Btuh
Floor total	1776 sqft	10101	Btuh
Infiltration	37 cfm	1626	Btuh
Duct loss		5300	Btuh
Subtotal		27307	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27307	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1776 sqft)

Load component		Load	
Window total	159 sqft	3165	Btuh
Wall total	1509 sqft	3272	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1865 sqft	1609	Btuh
Floor total		0	Btuh
Infiltration	28 cfm	579	Btuh
Internal gain		3040	Btuh
Duct gain		4571	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16789	Btuh
Latent gain(ducts)		1399	Btuh
Latent gain(infiltration)		961	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		3960	Btuh
TOTAL HEAT GAIN		20749	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 3 / 8 / 2022

W. C. Smith

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32025

Project Title:
Lot 34 Jewel Lake II
Building Type: User

3/8/2022

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	W	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
4	2, NFRC 0.25	Metal	0.36	E	33.3		14.4	480 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
Window Total					159.3(sqft)			2294 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Adj	(0.089)	13.0/0.0	140		3.55	497 Btuh
2	Frame - Wood	- Adj	(0.089)	13.0/0.0	107		3.55	379 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	20		3.55	71 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.55	291 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	465		3.55	1651 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	66		3.55	234 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	227 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	71		3.55	251 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	227 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.55	291 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	288		3.55	1024 Btuh
Wall Total					1509(sqft)			5356 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior,	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		1865		1.0	1893 Btuh
Ceiling Total					1865(sqft)			1893Btuh
Floors	Type	Ueff.	R-Value		Size	X	HTM=	Load
1	Slab On Grade	(1.180)	0.0		214.0 ft(perim.)		47.2	10101 Btuh
Floor Total					1776 sqft			10101 Btuh
Envelope Subtotal:								20381 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	14208	1.00	37.1		1626 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.241)							5300 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 34 Jewel Lake II
Building Type: User

3/8/2022

All Zones	Sensible Subtotal All Zones	27307 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27307 Btuh 0 Btuh 27307 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27307 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 34 Jewel Lake II

Lake City, FL 32025

3/8/2022

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

Component Loads for Whole House

Window	Type*						Overhang		Window Area(sqft)			HTM		Load		
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded			
1	2 NFRC	0.25, 0.36	No	No	W		5.5ft.	1.0ft.	30.0	21.4	8.6	12	31	525	Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181	Btuh	
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh	
4	2 NFRC	0.25, 0.36	No	No	E		9.5ft.	1.0ft.	33.3	33.3	0.0	12	31	403	Btuh	
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73	Btuh	
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh	
	Window Total								159 (sqft)					3165		Btuh
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath									
1	Frame - Wood - Adj						0.09	13.0/0.0	140.0			1.7		236		Btuh
2	Frame - Wood - Adj						0.09	13.0/0.0	106.7			1.7		180		Btuh
3	Frame - Wood - Ext						0.09	13.0/0.0	20.0			2.3		45		Btuh
4	Frame - Wood - Ext						0.09	13.0/0.0	60.0			2.3		136		Btuh
5	Frame - Wood - Ext						0.09	13.0/0.0	82.0			2.3		186		Btuh
6	Frame - Wood - Ext						0.09	13.0/0.0	465.0			2.3		1052		Btuh
7	Frame - Wood - Ext						0.09	13.0/0.0	66.0			2.3		149		Btuh
8	Frame - Wood - Ext						0.09	13.0/0.0	64.0			2.3		145		Btuh
9	Frame - Wood - Ext						0.09	13.0/0.0	70.7			2.3		160		Btuh
10	Frame - Wood - Ext						0.09	13.0/0.0	64.0			2.3		145		Btuh
11	Frame - Wood - Ext						0.09	13.0/0.0	82.0			2.3		186		Btuh
12	Frame - Wood - Ext						0.09	13.0/0.0	288.3			2.3		653		Btuh
	Wall Total								1509 (sqft)					3272		Btuh
Doors	Type						Area (sqft)			HTM		Load				
	1 Insulated - Garage						20.0			13.8		276		Btuh		
	2 Insulated - Exterior						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/Shingle/RB						0.025	38.0/0.0	1865.0			0.86		1609		Btuh
	Ceiling Total								1865 (sqft)					1609		Btuh
Floors	Type						R-Value		Size			HTM		Load		
	1 Slab On Grade						0.0		1776 (ft-perimeter)			0.0		0		Btuh
	Floor Total								1776.0 (sqft)					0		Btuh
	Envelope Subtotal:													8599		Btuh
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.12		14208		1		27.8		579	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							8		X 230		+		1200		3040	
	Sensible Envelope Load:													12218		Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 34 Jewel Lake II

Lake City, FL 32025

3/8/2022

Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.374)	4571 Btuh
	Sensible Load All Zones	16789 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 34 Jewel Lake II

Lake City, FL 32025

3/8/2022

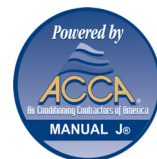
WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12218 Btuh
	Sensible Duct Load	4571 Btuh
	Total Sensible Zone Loads	16789 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16789 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	961 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1399 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3960 Btuh
	TOTAL GAIN	20749 Btuh

EQUIPMENT

1. Central Unit	#	21122 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