

Residential System Sizing Calculation

Summary

Project Title:
Lot 32 Jewel Lake II

Lake City, FL 32025

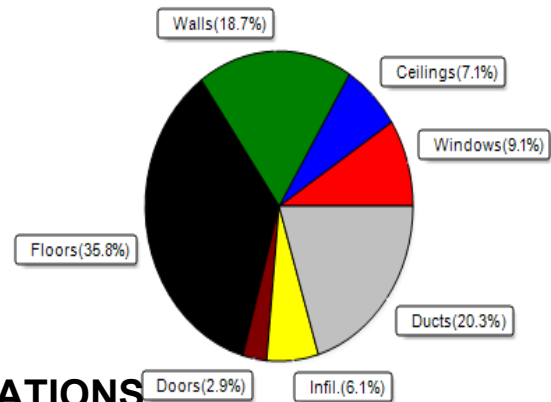
3/8/2022

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	24162 Btuh	Total cooling load calculation	20293 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 24162	Sensible (SHR = 0.70)	81.3 13510
Heat Pump + Auxiliary(0.0kW)	100.0 24162	Latent	157.2 5790
		Total (Electric Heat Pump)	95.1 19300

WINTER CALCULATIONS

Winter Heating Load (for 1607 sqft)

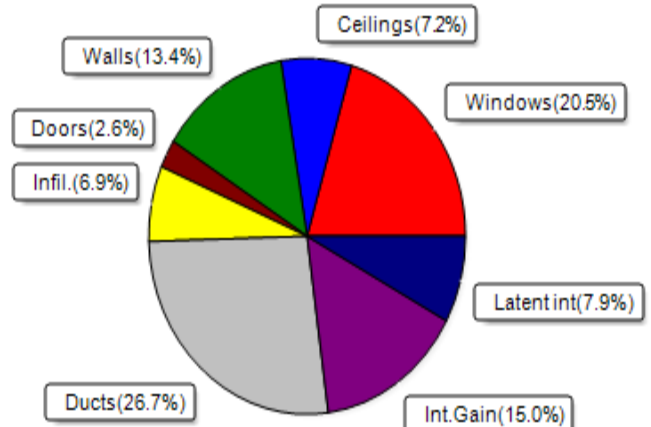
Load component		Load	
Window total	153 sqft	2208 Btuh	
Wall total	1273 sqft	4519 Btuh	
Door total	38 sqft	695 Btuh	
Ceiling total	1687 sqft	1713 Btuh	
Floor total	1607 sqft	8653 Btuh	
Infiltration	34 cfm	1471 Btuh	
Duct loss		4903 Btuh	
Subtotal		24162 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		24162 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1607 sqft)

Load component		Load	
Window total	153 sqft	4155 Btuh	
Wall total	1273 sqft	2717 Btuh	
Door total	38 sqft	521 Btuh	
Ceiling total	1687 sqft	1456 Btuh	
Floor total		0 Btuh	
Infiltration	25 cfm	524 Btuh	
Internal gain		3040 Btuh	
Duct gain		4196 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		16610 Btuh	
Latent gain(ducts)		1214 Btuh	
Latent gain(infiltration)		869 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1600 Btuh	
Total latent gain		3683 Btuh	
TOTAL HEAT GAIN		20293 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 32 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	E	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	W	60.0		14.4	864 Btuh
4	2, NFRC 0.25	Metal	0.36	W	33.3		14.4	480 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
Window Total					153.3(sqft)			2208 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.55	324 Btuh
2	Frame - Wood	- Adj	(0.089)	13.0/0.0	126		3.55	448 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	157		3.55	559 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	273		3.55	969 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	169		3.55	601 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	227 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	39		3.55	137 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	353		3.55	1253 Btuh
Wall Total					1273(sqft)			4519 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)		18		18.4	327 Btuh
Door Total					38(sqft)			695Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1687		1.0	1713 Btuh
Ceiling Total					1687(sqft)			1713Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	183.3 ft(perim.)		47.2	8653 Btuh
Floor Total					1607 sqft			8653 Btuh
Envelope Subtotal:								17788 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	12856	1.00	33.6		1471 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.255)							4903 Btuh
All Zones	Sensible Subtotal All Zones							24162 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 32 Jewel Lake II
Building Type: User

3/8/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	24162 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	24162 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24162 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 32 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	E		1.0ft.	3.0ft.	30.0	0.0	30.0	12	31	928 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	W		1.5ft.	1.0ft.	60.0	2.9	57.1	12	31	1801 Btuh
4	2 NFRC	0.25, 0.36	No	No	W		9.5ft.	1.0ft.	33.3	33.3	0.0	12	31	403 Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181 Btuh
	Excursion													660 Btuh
	Window Total								153 (sqft)					4155 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load	
							Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.0	91.3		2.3		207 Btuh	
2	Frame - Wood - Adj						0.09	13.0/0.0	126.2		1.7		213 Btuh	
3	Frame - Wood - Adj						0.09	13.0/0.0	157.3		1.7		265 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	273.0		2.3		618 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	169.3		2.3		383 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	64.0		2.3		145 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	38.7		2.3		88 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	353.0		2.3		799 Btuh	
	Wall Total								1273 (sqft)				2717 Btuh	
Doors	Type								Area (sqft)		HTM		Load	
1	Insulated - Exterior								20.0		13.8		276 Btuh	
2	Insulated - Garage								17.8		13.8		245 Btuh	
	Door Total								38 (sqft)				521 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	1687.0		0.86		1456 Btuh	
	Ceiling Total								1687 (sqft)				1456 Btuh	
Floors	Type						R-Value		Size		HTM		Load	
1	Slab On Grade						0.0		1607 (ft-perimeter)		0.0		0 Btuh	
	Floor Total								1607.0 (sqft)				0 Btuh	
	Envelope Subtotal:												8850 Btuh	
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural						0.12		12856		1		25.2	524 Btuh
Internal gain							Occupants		Btuh/occupant		Appliance		Load	
							8		X 230		+		3040 Btuh	
	Sensible Envelope Load:												12414 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.338)												4196 Btuh	
	Sensible Load All Zones												16610 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 32 Jewel Lake II

Lake City, FL 32025

3/8/2022

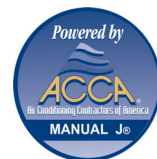
WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12414 Btuh
	Sensible Duct Load	4196 Btuh
	Total Sensible Zone Loads	16610 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16610 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	869 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1214 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3683 Btuh
	TOTAL GAIN	20293 Btuh

EQUIPMENT

1. Central Unit	#	19300 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