

Residential System Sizing Calculation

Summary

Project Title:

Lot 44 Jewel Lake Phase II - Brittany Model

Lake City, FL 32025

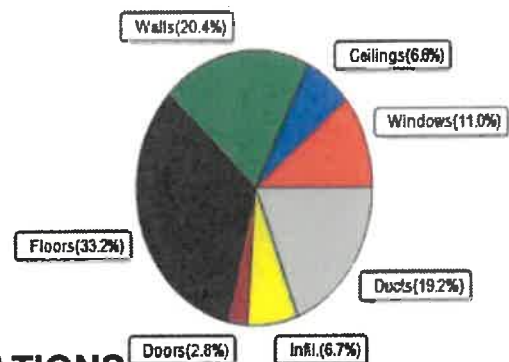
9/28/2021

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	26359 Btuh	Total cooling load calculation	19237 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 26359	Sensible (SHR = 0.70)	85.3 13466
Heat Pump + Auxiliary(0.0kW)	100.0 26359	Latent	167.1 5771
		Total (Electric Heat Pump)	100.0 19237

WINTER CALCULATIONS

Winter Heating Load (for 1636 sqft)

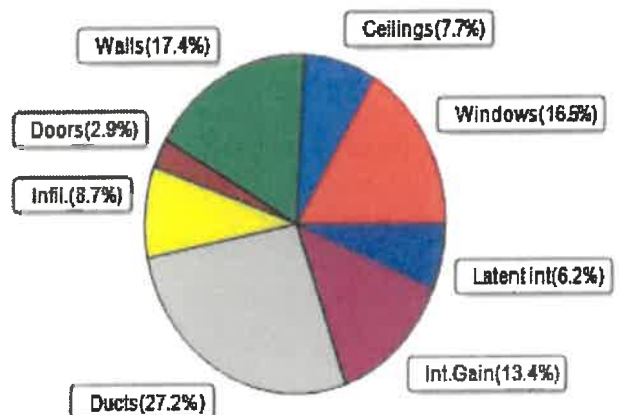
Load component	Load
Window total 202 sqft	2909 Btuh
Wall total 1518 sqft	5388 Btuh
Door total 40 sqft	736 Btuh
Ceiling total 1718 sqft	1744 Btuh
Floor total 1636 sqft	8756 Btuh
Infiltration 40 cfm	1766 Btuh
Duct loss	5061 Btuh
Subtotal	26359 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	26359 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1636 sqft)

Load component	Load
Window total 202 sqft	3175 Btuh
Wall total 1518 sqft	3345 Btuh
Door total 40 sqft	552 Btuh
Ceiling total 1718 sqft	1483 Btuh
Floor total	0 Btuh
Infiltration 30 cfm	629 Btuh
Internal gain	2580 Btuh
Duct gain	4021 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	15784 Btuh
Latent gain(ducts)	1209 Btuh
Latent gain(infiltration)	1044 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3453 Btuh
TOTAL HEAT GAIN	19237 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

9/28/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
 Lot 44 Jewel Lake Phase II - Brittany Model
 Lake City, FL 32025 Building Type: User

9/28/2021

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	Load
1	2, NFRC 0.25	Vinyl	0.36	S	16.0	14.4	230 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	30.0	14.4	432 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	15.0	14.4	216 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	6.0	14.4	86 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	15.0	14.4	216 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	30.0	14.4	432 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	40.0	14.4	576 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	30.0	14.4	432 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	20.0	14.4	288 Btuh
	Window Total				202.0(sqft)		2909 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	134	3.55	476 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	36	3.55	128 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	16	3.55	57 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	36	3.55	128 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	59	3.55	208 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	156	3.55	552 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	353	3.55	1251 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	83	3.55	293 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	65	3.55	229 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	72	3.55	256 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	78	3.55	277 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	95	3.55	337 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	86	3.55	304 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	252	3.55	893 Btuh
	Wall Total				1518(sqft)		5388 Btuh
Doors	Type	Storm	Ueff.		Area	X	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	Load
1	Vented Attic/L/Shing	(0.025)	38.0/0.0		1718	1.0	1744 Btuh
	Ceiling Total				1718(sqft)		1744Btuh
Floors	Type	Ueff.	R-Value		Size	X	Load
1	Slab On Grade	(1.180)	0.0		185.5 ft(perim.)	47.2	8756 Btuh
	Floor Total				1636 sqft		8756 Btuh
Envelope Subtotal:							19532 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.16	14724	1.00	40.3	1766 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 44 Jewel Lake Phase II - Brittany Model
Building Type: User

9/28/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.238)	5061 Btuh
All Zones	Sensible Subtotal All Zones	26359 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	26359 Btuh 0 Btuh 26359 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	26359 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 44 Jewel Lake Phase II - Brittany Model

Lake City, FL 32025

9/28/2021

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	
1	2 NFRC	0.25, 0.36	No	No	S	5.5ft.	1.0ft.	16.0	16.0	0.0	12	14	194 Btuh
2	2 NFRC	0.25, 0.36	No	No	S	1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363 Btuh
3	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450 Btuh
4	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176 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
6	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363 Btuh
7	2 NFRC	0.25, 0.36	No	No	N	10.2f	1.0ft.	40.0	0.0	40.0	12	12	484 Btuh
8	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	2.0ft.	30.0	0.0	30.0	12	12	363 Btuh
9	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600 Btuh
	Window Total							202 (sqft)					3175 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load			
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Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 44 Jewel Lake Phase II - Brittany Model

Lake City, FL 32025

9/28/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 14724	Wall Ratio 1	CFM= 30.2	Load 629 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
	Sensible Envelope Load:					11763 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.342)	4021 Btuh
	Sensible Load All Zones					15784 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate: FL_GAINESVILLE_REGIONAL_A
 Lot 44 Jewel Lake Phase II - Brittany Model

Lake City, FL 32025

9/28/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11763 Btuh
	Sensible Duct Load	4021 Btuh
	Total Sensible Zone Loads	15784 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15784 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1044 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1209 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3453 Btuh
	TOTAL GAIN	19237 Btuh

EQUIPMENT

1. Central Unit	#	19237 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