

Residential System Sizing Calculation

Summary

Project Title:
Lot 41 Jewel Lake

Lake City, FL 32025

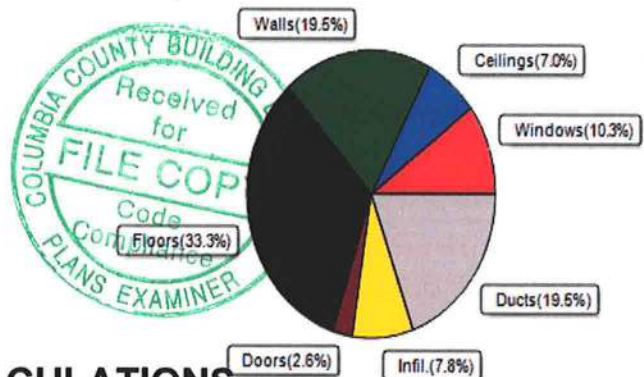
7/30/2020

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	28291 Btuh	Total cooling load calculation	21445 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 28291	Sensible (SHR = 0.70)	87.2 15011
Heat Pump + Auxiliary(0.0kW)	100.0 28291	Latent	152.2 6433
		Total (Electric Heat Pump)	100.0 21445

WINTER CALCULATIONS

Winter Heating Load (for 1867 sqft)

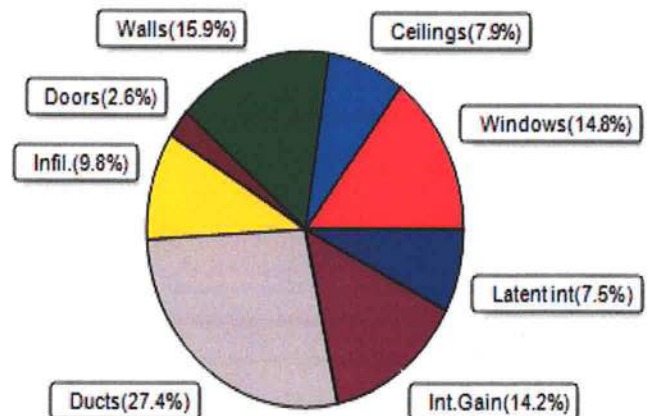
Load component		Load	
Window total	202 sqft	2909	Btuh
Wall total	1554 sqft	5515	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1960 sqft	1990	Btuh
Floor total	1867 sqft	9416	Btuh
Infiltration	51 cfm	2213	Btuh
Duct loss		5512	Btuh
Subtotal		28291	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		28291	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1867 sqft)

Load component		Load	
Window total	202 sqft	3175	Btuh
Wall total	1554 sqft	3416	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1960 sqft	1691	Btuh
Floor total		0	Btuh
Infiltration	38 cfm	788	Btuh
Internal gain		3040	Btuh
Duct gain		4554	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		17217	Btuh
Latent gain(ducts)		1320	Btuh
Latent gain(infiltration)		1308	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		4228	Btuh
TOTAL HEAT GAIN		21445	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: 7/30/2020

DATE: 7/30/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Lot 41 Jewel Lake
Building Type: User

Lake City, FL 32025

7/30/2020

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	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	HTM=	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	174		3.55	616 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	101		3.55	357 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					1554(sqft)			5515 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/Shing		(0.025)	38.0/0.0	1960		1.0	1990 Btuh
Ceiling Total					1960(sqft)			1990Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	199.5 ft(perim.)		47.2	9416 Btuh
Floor Total					1867 sqft			9416 Btuh
Envelope Subtotal:								20566 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	16803	1.00	50.5		2213 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 41 Jewel Lake
Building Type: User

7/30/2020

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.242)	5512 Btuh
All Zones	Sensible Subtotal All Zones	28291 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	28291 Btuh 0 Btuh 28291 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	28291 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 41 Jewel Lake

Lake City, FL 32025

7/30/2020

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	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	
1	Frame - Wood - Ext				0.09		13.0/0.0		134.0		2.3	303 Btuh		
2	Frame - Wood - Ext				0.09		13.0/0.0		36.0		2.3	81 Btuh		
3	Frame - Wood - Ext				0.09		13.0/0.0		16.0		2.3	36 Btuh		
4	Frame - Wood - Ext				0.09		13.0/0.0		36.0		2.3	81 Btuh		
5	Frame - Wood - Ext				0.09		13.0/0.0		58.5		2.3	132 Btuh		
6	Frame - Wood - Adj				0.09		13.0/0.0		173.5		1.7	293 Btuh		
7	Frame - Wood - Ext				0.09		13.0/0.0		352.5		2.3	798 Btuh		
8	Frame - Wood - Ext				0.09		13.0/0.0		100.5		2.3	227 Btuh		
9	Frame - Wood - Ext				0.09		13.0/0.0		64.5		2.3	146 Btuh		
10	Frame - Wood - Ext				0.09		13.0/0.0		72.0		2.3	163 Btuh		
11	Frame - Wood - Ext				0.09		13.0/0.0		78.0		2.3	177 Btuh		
12	Frame - Wood - Ext				0.09		13.0/0.0		95.0		2.3	215 Btuh		
13	Frame - Wood - Ext				0.09		13.0/0.0		85.5		2.3	194 Btuh		
14	Frame - Wood - Ext				0.09		13.0/0.0		251.5		2.3	569 Btuh		
	Wall Total								1554 (sqft)					3416 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		1960.0		0.86	1691 Btuh		
	Ceiling Total								1960 (sqft)					1691 Btuh
Floors	Type	U-Value			R-Value			Size			HTM		Load	
1	Slab On Grade						0.0		1867 (ft-perimeter)		0.0	0 Btuh		
	Floor Total								1867.0 (sqft)					0 Btuh
	Envelope Subtotal:												8834 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 41 Jewel Lake

Lake City, FL 32025

7/30/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 16803	Wall Ratio 1	CFM= 37.9	Load 788 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
					Sensible Envelope Load:	12663 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.360)	4554 Btuh
					Sensible Load All Zones	17217 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 41 Jewel Lake

Lake City, FL 32025

7/30/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12663 Btuh
	Sensible Duct Load	4554 Btuh
	Total Sensible Zone Loads	17217 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17217 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1308 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1320 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4228 Btuh
	TOTAL GAIN	21445 Btuh

EQUIPMENT

1. Central Unit	#	21445 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