

Residential System Sizing Calculation

Summary

Project Title:
Lot 54 Crosswinds

Lake City, FL 32024

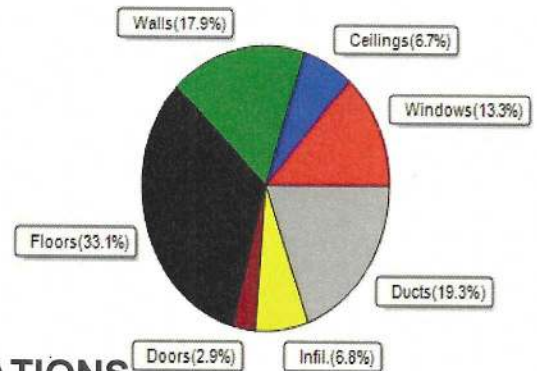
12/6/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)			
Winter design temperature(MJ8 99%/Cu)	33 F	Summer design temperature(MJ8 99%/Cu)	99 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	24 F
Total heating load calculation	23416 Btuh	Total cooling load calculation	23266 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	108.0 25297	Sensible (SHR = 0.75)	80.7 15934
Heat Pump + Auxiliary(0.0kW)	108.0 25297	Latent	150.6 5311
		Total (Electric Heat Pump)	91.3 21245

WINTER CALCULATIONS

Winter Heating Load (for 1595 sqft)

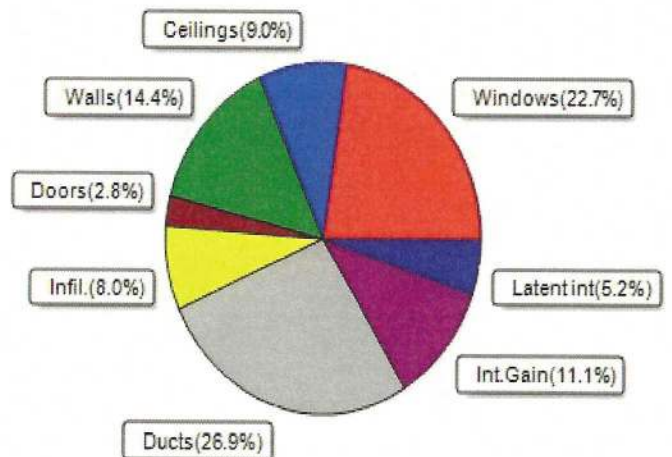
Load component	Load
Window total 240 sqft	3108 Btuh
Wall total 1277 sqft	4194 Btuh
Door total 40 sqft	681 Btuh
Ceiling total 1675 sqft	1573 Btuh
Floor total 1595 sqft	7745 Btuh
Infiltration 39 cfm	1592 Btuh
Duct loss	4523 Btuh
Subtotal	23416 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	23416 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1595 sqft)

Load component	Load
Window total 240 sqft	5285 Btuh
Wall total 1277 sqft	3356 Btuh
Door total 40 sqft	644 Btuh
Ceiling total 1675 sqft	2083 Btuh
Floor total	0 Btuh
Infiltration 29 cfm	775 Btuh
Internal gain	2580 Btuh
Duct gain	5017 Btuh
Sens. Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	19740 Btuh
Latent gain(ducts)	1249 Btuh
Latent gain(infiltration)	1078 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3526 Btuh
TOTAL HEAT GAIN	23266 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE: 12 / 6 / 2024

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32024

Project Title:
Lot 54 Crosswinds
Building Type: User

12/6/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%/Cu)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.26	Vinyl	0.35	S	30.0		12.9	388 Btuh
2	2, NFRC 0.26	Vinyl	0.35	E	30.0		12.9	388 Btuh
3	2, NFRC 0.26	Vinyl	0.35	N	45.0		12.9	583 Btuh
4	2, NFRC 0.26	Metal	0.35	N	60.0		12.9	777 Btuh
5	2, NFRC 0.26	Vinyl	0.35	W	75.0		12.9	971 Btuh
	Window Total					240.0(sqft)		3108 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	103		3.28	338 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.28	236 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.28	79 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	175		3.28	575 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	357		3.28	1172 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	174		3.28	571 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.28	236 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.28	305 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	207		3.28	680 Btuh
	Wall Total					1277(sqft)		4194 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
2	Insulated - Garage, n		(0.460)		20		17.0	340 Btuh
	Door Total					40(sqft)		681Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	1675		0.94	1573 Btuh
	Ceiling Total					1675(sqft)		1573Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	177.4 ft(perim.)		43.7	7745 Btuh
	Floor Total					1595 sqft		7745 Btuh
	Envelope Subtotal:							17301 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio		CFM=	Load
	Natural		0.16	14355	1.00		39.3	1592 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.239)		4523 Btuh
All Zones	Sensible Subtotal All Zones							23416 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32024

Project Title:
Lot 54 Crosswinds
Building Type: User

12/6/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	23416 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	23416 Btuh

EQUIPMENT

1. Electric Heat Pump	#	25297 Btuh
-----------------------	---	------------

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 54 Crosswinds

Lake City, FL 32024

12/6/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(MJ8 99%/Cu)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.26, 0.35	No	No	S		10.5f	1.0ft.	30.0	30.0	0.0	14	16	416	Btuh
2	2 NFRC	0.26, 0.35	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	14	33	975	Btuh
3	2 NFRC	0.26, 0.35	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	14	14	624	Btuh
4	2 NFRC	0.26, 0.35	No	No	N		9.5ft.	1.0ft.	60.0	0.0	60.0	14	14	832	Btuh
5	2 NFRC	0.26, 0.35	No	No	W		1.5ft.	1.0ft.	75.0	3.7	71.3	14	33	2438	Btuh
	Window Total								240 (sqft)					5285 Btuh	
Walls	Type					U-Value		R-Value		Area(sqft)		HTM		Load	
								Cav/Sheath							
1	Frame - Wood - Ext					0.09		13.0/0.0		103.0		2.7		279 Btuh	
2	Frame - Wood - Ext					0.09		13.0/0.0		72.0		2.7		195 Btuh	
3	Frame - Wood - Ext					0.09		13.0/0.0		24.0		2.7		65 Btuh	
4	Frame - Wood - Adj					0.09		13.0/0.0		175.0		2.1		373 Btuh	
5	Frame - Wood - Ext					0.09		13.0/0.0		357.0		2.7		966 Btuh	
6	Frame - Wood - Ext					0.09		13.0/0.0		174.0		2.7		471 Btuh	
7	Frame - Wood - Ext					0.09		13.0/0.0		72.0		2.7		195 Btuh	
8	Frame - Wood - Ext					0.09		13.0/0.0		93.0		2.7		252 Btuh	
9	Frame - Wood - Ext					0.09		13.0/0.0		207.0		2.7		560 Btuh	
	Wall Total								1277 (sqft)					3356 Btuh	
Doors	Type									Area (sqft)		HTM		Load	
1	Insulated - Exterior									20.0		16.1		322 Btuh	
2	Insulated - Garage									20.0		16.1		322 Btuh	
	Door Total								40 (sqft)					644 Btuh	
Ceilings	Type/Color/Surface					U-Value		R-Value		Area(sqft)		HTM		Load	
1	Vented Attic/DarkShingle/RB					0.025		38.0/0.0		1674.8		1.24		2083 Btuh	
	Ceiling Total								1675 (sqft)					2083 Btuh	
Floors	Type							R-Value		Size		HTM		Load	
1	Slab On Grade							0.0		1595 (ft-perimeter)		0.0		0 Btuh	
	Floor Total								1595.0 (sqft)					0 Btuh	
	Envelope Subtotal:													11368 Btuh	
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.12		14355		1		29.5		775 Btuh	
Internal gain						Occupants		Btuh/occupant		Appliance		Load			
						6		X 230		+		1200		2580 Btuh	
	Sensible Envelope Load:													14723 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.341)		5017 Btuh		
	Sensible Load All Zones													19740 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 54 Crosswinds

Lake City, FL 32024

12/6/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14723 Btuh
	Sensible Duct Load	5017 Btuh
	Total Sensible Zone Loads	19740 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19740 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	1078 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1249 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3526 Btuh
	TOTAL GAIN	23266 Btuh

EQUIPMENT

1. Central Unit	#	21245 Btuh
-----------------	---	------------

*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