

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 43 Crosswinds

Lake City, FL 32025

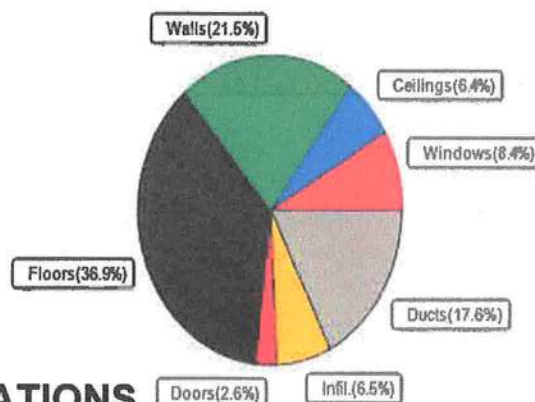
9/14/2021

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	27953 Btuh	Total cooling load calculation	18836 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 27953	Sensible (SHR = 0.70)	86.2 13186
Heat Pump + Auxiliary(0.0kW)	100.0 27953	Latent	159.7 5651
		Total (Electric Heat Pump)	100.0 18836

WINTER CALCULATIONS

Winter Heating Load (for 1677 sqft)

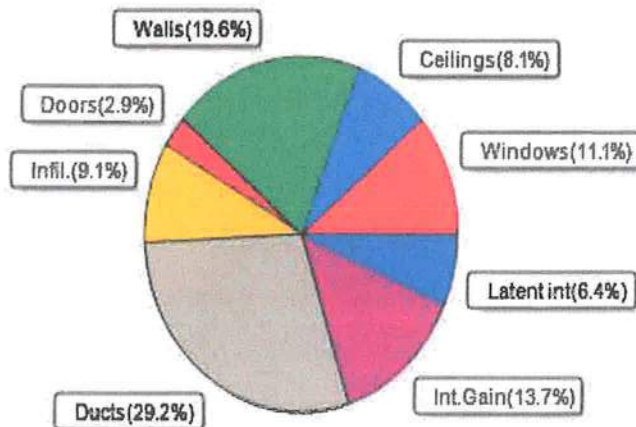
Load component		Load	
Window total	163 sqft	2352	Btuh
Wall total	1696 sqft	6020	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1760 sqft	1787	Btuh
Floor total	1677 sqft	10321	Btuh
Infiltration	41 cfm	1810	Btuh
Duct loss		4927	Btuh
Subtotal		27953	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27953	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1677 sqft)

Load component		Load	
Window total	163 sqft	2090	Btuh
Wall total	1696 sqft	3688	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1760 sqft	1519	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	645	Btuh
Internal gain		2580	Btuh
Duct gain		4223	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		15297	Btuh
Latent gain(ducts)		1270	Btuh
Latent gain(infiltration)		1070	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3540	Btuh
TOTAL HEAT GAIN		18836	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32025

Project Title:
Lot 43 Crosswinds
Building Type: User

9/14/2021

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	HTM=	Load
1	2, NFRC 0.25	Vinyl	0.36	S	9.0		14.4	130 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	13.3		14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	4.0		14.4	58 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	9.0		14.4	130 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
10	2, NFRC 0.25	Vinyl	0.36	N	4.0		14.4	58 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
12	2, NFRC 0.25	Vinyl	0.36	N	10.0		14.4	144 Btuh
Window Total					163.3(sqft)			2352 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	457 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	302		3.55	1072 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	383 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	147		3.55	522 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	248		3.55	880 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	176		3.55	625 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	190		3.55	675 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	69		3.55	245 Btuh
Wall Total					1696(sqft)			6020 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	1760		1.0	1787 Btuh
Ceiling Total					1760(sqft)			1787Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	218.7 ft(perim.)		47.2	10321 Btuh
Floor Total					1677 sqft			10321 Btuh
Envelope Subtotal:								21216 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32025

Project Title:
Lot 43 Crosswinds
Building Type: User

9/14/2021

Infiltration	Type Natural	Wholehouse ACH 0.16	Volume(cuft) 15093	Wall Ratio 1.00	CFM= 41.3	1810 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.214)					4927 Btuh
All Zones	Sensible Subtotal All Zones					27953 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27953 Btuh 0 Btuh 27953 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27953 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

N/A

Project Title:
Lot 43 Crosswinds

Lake City, FL 32025

9/14/2021

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	Unshaded			
1	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	9.0	9.0	0.0	12	14	109	Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		6.5ft.	1.0ft.	13.3	13.3	0.0	12	14	161	Btuh	
3	2 NFRC	0.25, 0.36	No	No	S		6.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh	
4	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181	Btuh	
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh	
7	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	20.0	0.0	20.0	12	12	242	Btuh	
8	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	9.0	0.0	9.0	12	12	109	Btuh	
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh	
10	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	4.0	0.0	4.0	12	12	48	Btuh	
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
12	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	10.0	0.0	10.0	12	12	121	Btuh	
	Window Total								163 (sqft)					2090 Btuh		
Walls	Type					U-Value	R-Value		Area(sqft)			HTM		Load		
							Cav/Sheath									
1	Frame - Wood - Ext					0.09	13.0/0.0		60.0			2.3		136 Btuh		
2	Frame - Wood - Ext					0.09	13.0/0.0		128.7			2.3		291 Btuh		
3	Frame - Wood - Ext					0.09	13.0/0.0		96.0			2.3		217 Btuh		
4	Frame - Wood - Ext					0.09	13.0/0.0		302.0			2.3		684 Btuh		
5	Frame - Wood - Ext					0.09	13.0/0.0		99.0			2.3		224 Btuh		
6	Frame - Wood - Ext					0.09	13.0/0.0		108.0			2.3		244 Btuh		
7	Frame - Wood - Ext					0.09	13.0/0.0		147.0			2.3		333 Btuh		
8	Frame - Wood - Ext					0.09	13.0/0.0		72.0			2.3		163 Btuh		
9	Frame - Wood - Ext					0.09	13.0/0.0		248.0			2.3		561 Btuh		
10	Frame - Wood - Ext					0.09	13.0/0.0		176.0			2.3		398 Btuh		
11	Frame - Wood - Adj					0.09	13.0/0.0		190.0			1.7		320 Btuh		
12	Frame - Wood - Adj					0.09	13.0/0.0		69.0			1.7		116 Btuh		
	Wall Total								1696 (sqft)					3688 Btuh		
Doors	Type								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		1760.0			0.86		1519 Btuh		
	Ceiling Total								1760 (sqft)					1519 Btuh		
Floors	Type					R-Value			Size			HTM		Load		
1	Slab On Grade					0.0			1677 (ft-perimeter)			0.0		0 Btuh		
	Floor Total								1677.0 (sqft)					0 Btuh		
	Envelope Subtotal:													7849 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 43 Crosswinds

Lake City, FL 32025

9/14/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 15093	Wall Ratio 1	CFM= 31.0	Load 645 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	11074 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.381)	4223 Btuh
					Sensible Load All Zones	15297 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title:
Lot 43 Crosswinds

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32025

9/14/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11074 Btuh
	Sensible Duct Load	4223 Btuh
	Total Sensible Zone Loads	15297 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15297 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1070 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1270 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3540 Btuh
	TOTAL GAIN	18836 Btuh

EQUIPMENT

1. Central Unit	#	18836 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