

Residential System Sizing Calculation

Summary

Project Title:
Lot 7 Crosswinds

Lake City, FL 32024

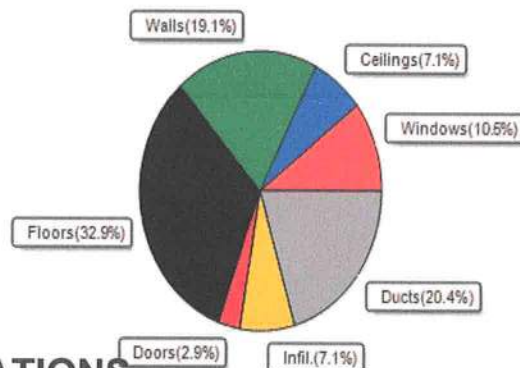
4/11/2022

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	25326 Btuh	Total cooling load calculation	20382 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 25326	Sensible (SHR = 0.70)	82.8 13967
Heat Pump + Auxiliary(0.0kW)	100.0 25326	Latent	170.6 5986
		Total (Electric Heat Pump)	97.9 19952

WINTER CALCULATIONS

Winter Heating Load (for 1676 sqft)

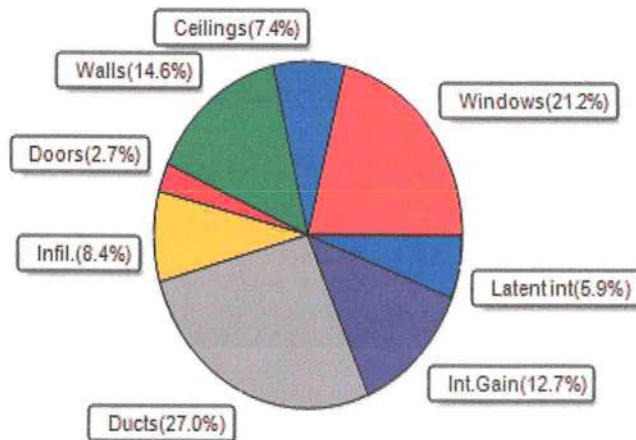
Load component		Load	
Window total	185 sqft	2664	Btuh
Wall total	1362 sqft	4836	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1759 sqft	1786	Btuh
Floor total	1676 sqft	8326	Btuh
Infiltration	41 cfm	1809	Btuh
Duct loss		5169	Btuh
Subtotal		25326	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		25326	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1676 sqft)

Load component		Load	
Window total	185 sqft	4325	Btuh
Wall total	1362 sqft	2985	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1759 sqft	1518	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	644	Btuh
Internal gain		2580	Btuh
Duct gain		4268	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16873	Btuh
Latent gain(ducts)		1240	Btuh
Latent gain(infiltration)		1069	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3509	Btuh
TOTAL HEAT GAIN		20382	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *Will C. My*

DATE: 4 / 11 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32024

Project Title:
Lot 7 Crosswinds
Building Type: User

4/11/2022

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	45.0		14.4	648 Btuh
2	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
3	2, NFRC 0.25	TIM	0.36	W	40.0		14.4	576 Btuh
4	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
6	2, NFRC 0.25	Vinyl	0.36	S	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
Window Total					185.0(sqft)			2664 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	139		3.55	493 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.55	804 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	178 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	144		3.55	511 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.55	955 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	315		3.55	1118 Btuh
7	Frame - Wood	- Adj	(0.089)	13.0/0.0	169		3.55	600 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	176 Btuh
Wall Total					1362(sqft)			4836 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	1759		1.0	1786 Btuh
Ceiling Total					1759(sqft)			1786Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	176.4 ft(perim.)		47.2	8326 Btuh
Floor Total					1676 sqft			8326 Btuh
Envelope Subtotal:								18347 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	15084	1.00	41.3		1809 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.256)							5169 Btuh
All Zones	Sensible Subtotal All Zones							25326 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32024

Project Title:
Lot 7 Crosswinds
Building Type: User

4/11/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	25326 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	25326 Btuh

EQUIPMENT

1. Electric Heat Pump	#	25326 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 7 Crosswinds

Lake City, FL 32024

4/11/2022

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	1.5ft.	1.0ft.	45.0	2.2	42.8	12	31	1351	Btuh	
2	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh	
3	2 NFRC	0.25, 0.36	No	No	W	6.5ft.	1.0ft.	40.0	26.4	13.6	12	31	741	Btuh	
4	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh	
5	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
6	2 NFRC	0.25, 0.36	No	No	S	1.5ft.	1.0ft.	6.0	6.0	0.0	12	14	73	Btuh	
7	2 NFRC	0.25, 0.36	No	No	S	1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh	
	Excursion												429	Btuh	
	Window Total							185 (sqft)						4325	Btuh
Walls	Type	U-Value			R-Value		Area(sqft)			HTM		Load			
						Cav/Sheath									
1	Frame - Wood - Ext				0.09	13.0/0.0		139.0			2.3		315	Btuh	
2	Frame - Wood - Ext				0.09	13.0/0.0		226.5			2.3		513	Btuh	
3	Frame - Wood - Ext				0.09	13.0/0.0		50.0			2.3		113	Btuh	
4	Frame - Wood - Ext				0.09	13.0/0.0		144.0			2.3		326	Btuh	
5	Frame - Wood - Ext				0.09	13.0/0.0		269.0			2.3		609	Btuh	
6	Frame - Wood - Ext				0.09	13.0/0.0		315.0			2.3		713	Btuh	
7	Frame - Wood - Adj				0.09	13.0/0.0		169.0			1.7		285	Btuh	
8	Frame - Wood - Ext				0.09	13.0/0.0		49.5			2.3		112	Btuh	
	Wall Total							1362 (sqft)						2985	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 Attic/Light/Shingle/RB	0.025			38.0/0.0		1759.0			0.86		1518 Btuh			
	Ceiling Total							1759 (sqft)						1518 Btuh	
Floors	Type				R-Value		Size			HTM		Load			
1	Slab On Grade				0.0		1676 (ft-perimeter)			0.0		0 Btuh			
	Floor Total							1676.0 (sqft)						0 Btuh	
	Envelope Subtotal:												9380 Btuh		
Infiltration	Type	Average ACH			Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural	0.12			15084		1		31.0		644 Btuh				
Internal gain		Occupants			Btuh/occupant		Appliance				Load				
		6			X 230		+		1200		2580 Btuh				
	Sensible Envelope Load:												12605 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.339)		4268 Btuh		
	Sensible Load All Zones												16873 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 7 Crosswinds

Lake City, FL 32024

4/11/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12605 Btuh
	Sensible Duct Load	4268 Btuh
	Total Sensible Zone Loads	16873 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16873 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1069 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1240 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3509 Btuh
	TOTAL GAIN	20382 Btuh

EQUIPMENT

1. Central Unit	#	19952 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