

Residential System Sizing Calculation

Summary

Project Title:
Lot 9 Crosswinds

Lake City, FL 32024

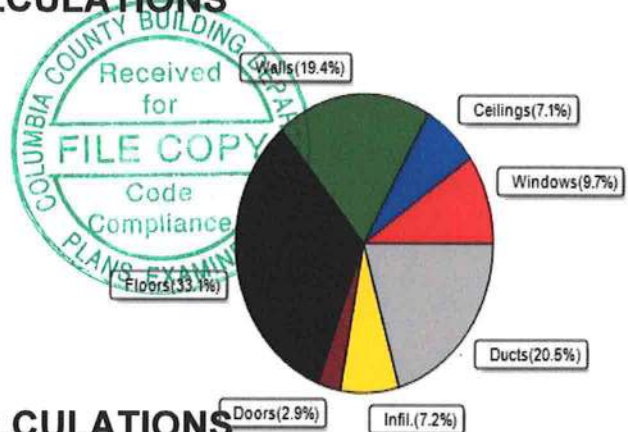
4/30/2021

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	25156	Btuh	Total cooling load calculation	19434	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	25156	Sensible (SHR = 0.70)	85.7	13593
Heat Pump + Auxiliary(0.0kW)	100.0	25156	Latent	163.5	5826
			Total (Electric Heat Pump)	99.9	19419

WINTER CALCULATIONS

Winter Heating Load (for 1676 sqft)

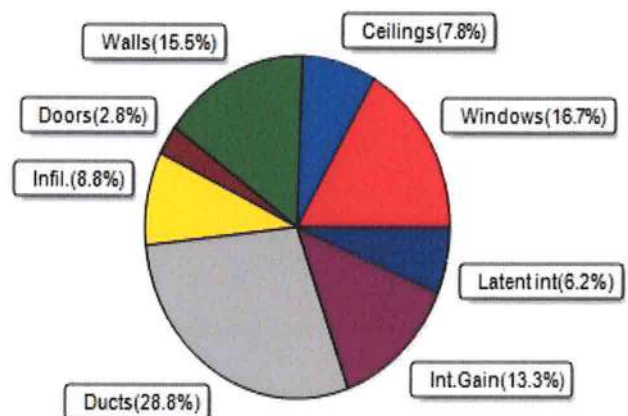
Load component		Load	
Window total	170 sqft	2448	Btuh
Wall total	1377 sqft	4889	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1759 sqft	1786	Btuh
Floor total	1676 sqft	8326	Btuh
Infiltration	41 cfm	1809	Btuh
Duct loss		5163	Btuh
Subtotal		25156	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		25156	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1676 sqft)

Load component		Load	
Window total	170 sqft	3252	Btuh
Wall total	1377 sqft	3019	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		4305	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		15870	Btuh
Latent gain(ducts)		1295	Btuh
Latent gain(infiltration)		1069	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3564	Btuh
TOTAL HEAT GAIN		19434	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32024

Project Title:
Lot 9 Crosswinds
Building Type: User

4/30/2021

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=
1	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4
2	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4
3	2, NFRC 0.25	TIM	0.36	N	40.0		14.4
4	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4
5	2, NFRC 0.25	Vinyl	0.36	N	4.0		14.4
6	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4
7	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4
Window Total					170.0(sqft)		2448 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	154		3.55
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.55
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	144		3.55
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.55
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	315		3.55
7	Frame - Wood	- Adj	(0.089)	13.0/0.0	169		3.55
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55
Wall Total					1377(sqft)		4889 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=
1	Insulated - Exterior, n		(0.460)		20		18.4
2	Insulated - Garage, n		(0.460)		20		18.4
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:							18185 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural		0.16	15084	1.00	41.3	1809 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.258)	5163 Btuh
All Zones	Sensible Subtotal All Zones						25156 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32024

Project Title:
Lot 9 Crosswinds
Building Type: User

4/30/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	25156 Btuh 0 Btuh 25156 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	25156 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 9 Crosswinds

Lake City, FL 32024

4/30/2021

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	7.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
3	2 NFRC	0.25, 0.36	No	No	N	6.5ft.	1.0ft.	40.0	0.0	40.0	12	12	484	Btuh
4	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
5	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	4.0	0.0	4.0	12	12	48	Btuh
6	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
7	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
	Excursion												16	Btuh
	Window Total							170 (sqft)					3252 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
					Cav/Sheath									
1	Frame - Wood - Ext		0.09		13.0/0.0		154.0		2.3		349	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							1377 (sqft)				3019 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		1759.0		0.86		1518	Btuh		
	Ceiling Total							1759 (sqft)				1518 Btuh		
Floors	Type	U-Value		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:											8341 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:											11565 Btuh		
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)							(DGM of 0.372)			4305 Btuh			
	Sensible Load All Zones											15870 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 9 Crosswinds

Lake City, FL 32024

4/30/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11565 Btuh
	Sensible Duct Load	4305 Btuh
	Total Sensible Zone Loads	15870 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15870 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1069 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1295 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3564 Btuh
	TOTAL GAIN	19434 Btuh

EQUIPMENT

1. Central Unit	#	19419 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