

Residential System Sizing Calculation

Summary

Project Title:
Lot 46 Crosswinds

Lake City, FL 32024

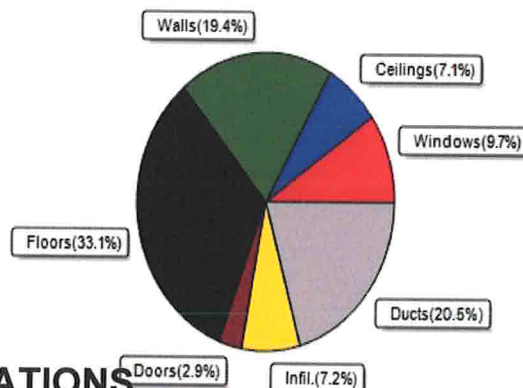
8/23/2022

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	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)

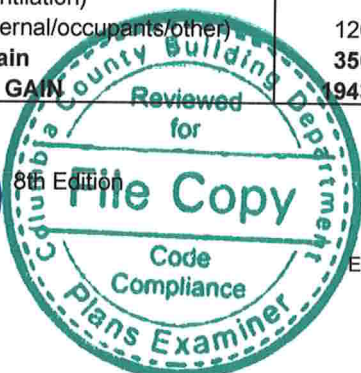
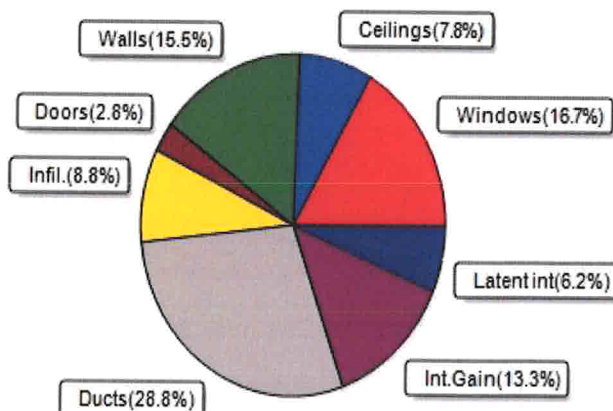
Load component		Load
Window total	170 sqft	2448 Btuh
Wall total	1377 sqft	4889 Btuh
Door total	40 sqft	736 Btuh
Ceiling total	1759 sqft	1786 Btuh
Floor total	1676 sqft	8326 Btuh
Infiltration	41 cfm	1809 Btuh
Duct loss		5163 Btuh
Subtotal		25156 Btuh
Ventilation	0 cfm	0 Btuh
TOTAL HEAT LOSS		25156 Btuh



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



EnergyGauge® System Sizing

PREPARED BY: *Will C. [Signature]*

DATE: 8 / 23 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32024

Project Title:
Lot 46 Crosswinds
Building Type: User

8/23/2022

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	S	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
3	2, NFRC 0.25	TIM	0.36	N	40.0		14.4	576 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	4.0		14.4	58 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
Window Total					170.0(sqft)			2448 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	154		3.55	547 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					1377(sqft)			4889 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:								18185 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 0.258)		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 46 Crosswinds
Building Type: User

8/23/2022

WHOLE HOUSE TOTALS

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

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 46 Crosswinds

Lake City, FL 32024

8/23/2022

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	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					
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	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	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 46 Crosswinds

Lake City, FL 32024

8/23/2022

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