

Residential System Sizing Calculation

Summary

947 SW Jaguar Dr
Lake City, FL

Project Title:
Rob Stewart

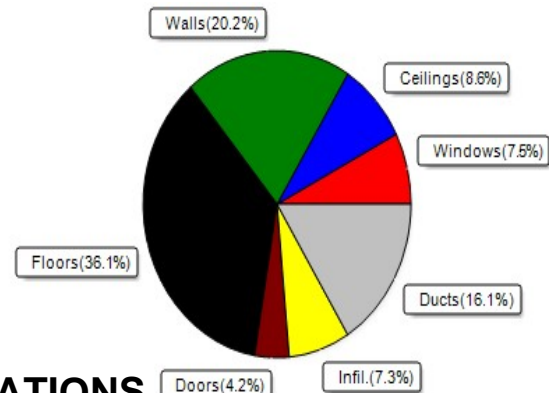
8/9/2022

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	22909	Btuh	Total cooling load calculation	24291	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	157.1	36000	Sensible (SHR = 0.85)	159.6	30600
Heat Pump + Auxiliary(0.0kW)	157.1	36000	Latent	105.5	5400
			Total (Electric Heat Pump)	148.2	36000

WINTER CALCULATIONS

Winter Heating Load (for 1550 sqft)

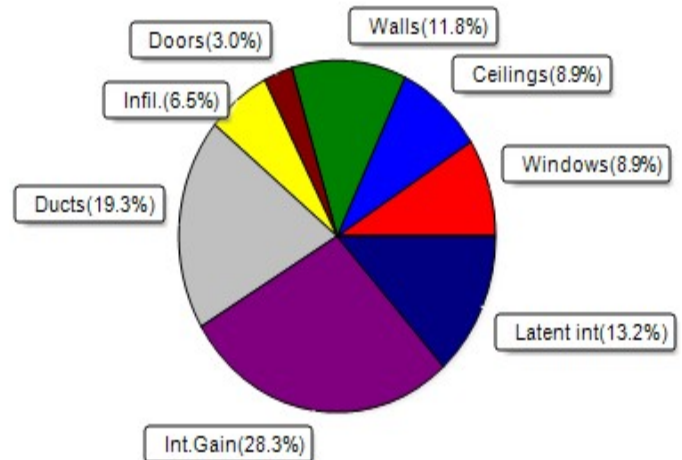
Load component	Load	
Window total	165 sqft	1716 Btuh
Wall total	1344 sqft	4635 Btuh
Door total	60 sqft	960 Btuh
Ceiling total	1550 sqft	1975 Btuh
Floor total	1550 sqft	8260 Btuh
Infiltration	38 cfm	1673 Btuh
Duct loss		3690 Btuh
Subtotal		22909 Btuh
Ventilation	0 cfm	0 Btuh
TOTAL HEAT LOSS		22909 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1550 sqft)

Load component	Load	
Window total	165 sqft	2173 Btuh
Wall total	1344 sqft	2865 Btuh
Door total	60 sqft	720 Btuh
Ceiling total	1550 sqft	2172 Btuh
Floor total		0 Btuh
Infiltration	29 cfm	596 Btuh
Internal gain		6880 Btuh
Duct gain		3766 Btuh
Sens. Ventilation	0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		19172 Btuh
Latent gain(ducts)		930 Btuh
Latent gain(infiltration)		989 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		3200 Btuh
Total latent gain		5119 Btuh
TOTAL HEAT GAIN		24291 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

947 SW Jaguar Dr
Lake City, FL

Project Title:
Rob Stewart

8/9/2022

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	0.20, 0.26	No	No	N	1.5ft.	2.3ft.	75.0	0.0	75.0	9	9	686	Btuh	
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft.	2.3ft.	16.0	0.0	16.0	9	9	146	Btuh	
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft.	2.3ft.	15.0	0.0	15.0	9	24	363	Btuh	
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft.	2.3ft.	15.0	15.0	0.0	9	11	137	Btuh	
5	2 NFRC	0.20, 0.26	No	No	S	1.5ft.	2.3ft.	15.0	15.0	0.0	9	11	137	Btuh	
6	2 NFRC	0.20, 0.26	No	No	W	1.5ft.	2.3ft.	20.0	0.0	20.0	9	24	484	Btuh	
7	2 NFRC	0.20, 0.26	No	No	W	1.5ft.	2.3ft.	9.0	0.0	9.0	9	24	218	Btuh	
Window Total								165 (sqft)					2173		Btuh
Walls	Type	U-Value	R-Value	Area(sqft)		HTM		Load							
			Cav/Sheath												
1	Frame - Wood - Ext	0.09	13.0/0.6	285.0	2.2	627	Btuh								
2	Frame - Wood - Ext	0.09	13.0/0.6	375.0	2.2	824	Btuh								
3	Frame - Wood - Ext	0.09	13.0/0.6	102.0	2.2	224	Btuh								
4	Frame - Wood - Ext	0.09	13.0/0.6	102.0	2.2	224	Btuh								
5	Frame - Wood - Ext	0.09	13.0/0.6	64.0	2.2	141	Btuh								
6	Frame - Wood - Adj	0.09	13.0/0.6	160.0	1.6	262	Btuh								
7	Frame - Wood - Ext	0.09	13.0/0.6	256.0	2.2	563	Btuh								
Wall Total				1344 (sqft)			2865	Btuh							
Doors	Type	Area (sqft)	HTM	Load											
1	Insulated - Exterior	20.0	12.0	240	Btuh										
2	Insulated - Exterior	20.0	12.0	240	Btuh										
3	Insulated - Garage	20.0	12.0	240	Btuh										
Door Total		60 (sqft)	720		Btuh										
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load									
1	Vented Attic/Light/Shingle	0.032	30.0/0.0	1550.0	1.40	2172	Btuh								
Ceiling Total				1550 (sqft)	2172		Btuh								
Floors	Type	R-Value	Size	HTM	Load										
1	Slab On Grade	0.0	1550 (ft-perimeter)	0.0	0	Btuh									
Floor Total				1550.0 (sqft)	0		Btuh								
Envelope Subtotal:						7930	Btuh								
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load									
	Natural	0.12	13950	1	28.7	596	Btuh								
Internal gain	Occupants	Btuh/occupant	Appliance	Load											
	16	X 230	+ 3200	6880	Btuh										
Sensible Envelope Load:						15406	Btuh								
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.244)	3766 <td>Btuh</td>	Btuh								
Sensible Load All Zones						19172	Btuh								

Manual J Summer Calculations

Residential Load - Component Details (continued)

947 SW Jaguar Dr
Lake City, FL

Project Title:
Rob Stewart

Climate:FL_GAINESVILLE_REGIONAL_A

8/9/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15406 Btuh
	Sensible Duct Load	3766 Btuh
	Total Sensible Zone Loads	19172 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19172 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	989 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	930 Btuh
	Latent occupant gain (16.0 people @ 200 Btuh per person)	3200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5119 Btuh
TOTAL GAIN	24291 Btuh	

EQUIPMENT

1. Central Unit	#	36000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

947 SW Jaguar Dr
Lake City, FL

Project Title:
Rob Stewart
Building Type: User

8/9/2022

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 0.20	Vinyl	0.26	N	75.0	10.4	780 Btuh	
2	2, NFRC 0.20	Vinyl	0.26	N	16.0	10.4	166 Btuh	
3	2, NFRC 0.20	Vinyl	0.26	E	15.0	10.4	156 Btuh	
4	2, NFRC 0.20	Vinyl	0.26	S	15.0	10.4	156 Btuh	
5	2, NFRC 0.20	Vinyl	0.26	S	15.0	10.4	156 Btuh	
6	2, NFRC 0.20	Vinyl	0.26	W	20.0	10.4	208 Btuh	
7	2, NFRC 0.20	Vinyl	0.26	W	9.0	10.4	94 Btuh	
	Window Total					165.0(sqft)		1716 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM= Load	
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	285	3.45	983 Btuh	
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	375	3.45	1293 Btuh	
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	102	3.45	352 Btuh	
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	102	3.45	352 Btuh	
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	64	3.45	221 Btuh	
6	Frame - Wood	- Adj	(0.086)	13.0/0.6	160	3.45	552 Btuh	
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	256	3.45	883 Btuh	
	Wall Total					1344(sqft)		4635 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM= Load	
1	Insulated - Exterior,	n	(0.400)		20	16.0	320 Btuh	
2	Insulated - Exterior,	n	(0.400)		20	16.0	320 Btuh	
3	Insulated - Garage,	n	(0.400)		20	16.0	320 Btuh	
	Door Total					60(sqft)		960Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM= Load	
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1550	1.3	1975 Btuh	
	Ceiling Total					1550(sqft)		1975Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM= Load	
1	Slab On Grade		(1.180)	0.0	175.0 ft(perim.)	47.2	8260 Btuh	
	Floor Total					1550 sqft		8260 Btuh
	Envelope Subtotal:							17545 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM= Load		
	Natural		0.16	13950	1.00	38.2	1673 Btuh	
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.192)	3690 Btuh	
All Zones	Sensible Subtotal All Zones						22909 Btuh	

Manual J Winter Calculations

Residential Load - Component Details (continued)

947 SW Jaguar Dr
Lake City, FL

Project Title:
Rob Stewart
Building Type: User

8/9/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	22909 Btuh 0 Btuh 22909 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	36000 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