

Residential System Sizing Calculation

Summary

610 Norma Jean Glenn
Lake City, FL 32024

Project Title:
Marianna Kaiser

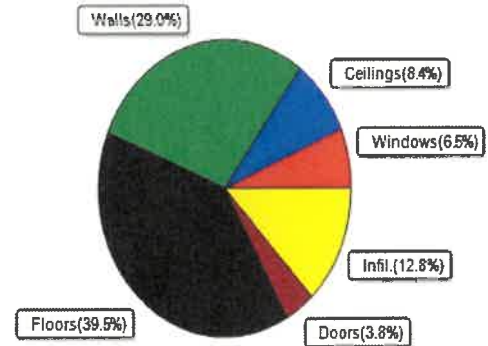
4/30/2021

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	19365 Btuh	Total cooling load calculation	13228 Btuh		
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh		
Total (Electric Heat Pump)	100.0 19365	Sensible (SHR = 0.70)	91.1 9260		
Heat Pump + Auxiliary(0.0kW)	100.0 19365	Latent	129.7 3969		
		Total (Electric Heat Pump)	100.0 13228		

WINTER CALCULATIONS

Winter Heating Load (for 1530 sqft)

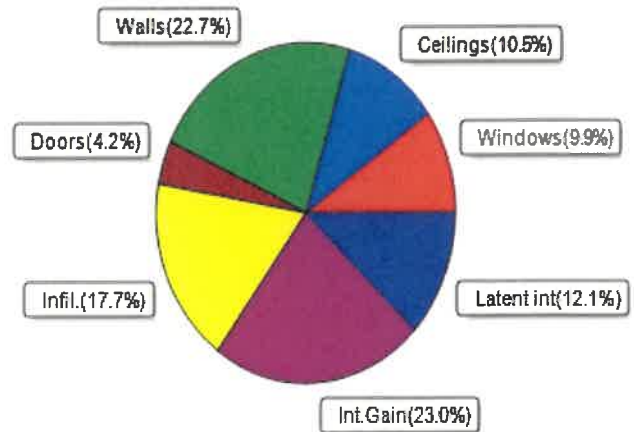
Load component			Load	
Window total	88 sqft		1267	Btuh
Wall total	1816 sqft		5613	Btuh
Door total	40 sqft		736	Btuh
Ceiling total	1607 sqft		1631	Btuh
Floor total	1530 sqft		7646	Btuh
Infiltration	56 cfm		2470	Btuh
Duct loss			0	Btuh
Subtotal			19365	Btuh
Ventilation	0 cfm		0	Btuh
TOTAL HEAT LOSS			19365	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1530 sqft)

Load component			Load	
Window total	88 sqft		1306	Btuh
Wall total	1816 sqft		3003	Btuh
Door total	40 sqft		552	Btuh
Ceiling total	1607 sqft		1387	Btuh
Floor total			0	Btuh
Infiltration	42 cfm		880	Btuh
Internal gain			3040	Btuh
Duct gain			0	Btuh
Sens. Ventilation	0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			10168	Btuh
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			1460	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1600	Btuh
Total latent gain			3060	Btuh
TOTAL HEAT GAIN			13228	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

4/30/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

610 Norma Jean Glenn
Lake City, FL 32024

Project Title:
Marianna Kaiser
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=	Load	
1	2, NFRC 0.25	Vinyl	0.36	S	18.0		14.4	259 Btuh	
2	2, NFRC 0.25	Vinyl	0.36	E	12.0		14.4	173 Btuh	
3	2, NFRC 0.25	TIM	0.36	E	40.0		14.4	576 Btuh	
4	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh	
5	2, NFRC 0.25	Vinyl	0.36	W	12.0		14.4	173 Btuh	
	Window Total					88.0(sqft)			1267 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load	
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	574		3.09	1774 Btuh	
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	308		3.09	952 Btuh	
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	606		3.09	1873 Btuh	
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	328		3.09	1014 Btuh	
	Wall Total					1816(sqft)			5613 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load	
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh	
2	Insulated - Exterior, 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/Metal	(0.025)	38.0/0.0		1607		1.0	1631 Btuh	
	Ceiling Total					1607(sqft)			1631Btuh
Floors	Type	Ueff.	R-Value		Size	X	HTM=	Load	
1	Slab On Grade	(1.180)	0.0		162.0 ft(perim.)		47.2	7646 Btuh	
	Floor Total					1530 sqft			7646 Btuh
	Envelope Subtotal:							16894 Btuh	
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load	
	Natural		0.18	18360	1.00	56.4		2470 Btuh	
Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)							0 Btuh	
All Zones	Sensible Subtotal All Zones							19365 Btuh	

Manual J Winter Calculations

Residential Load - Component Details (continued)

610 Norma Jean Glenn
Lake City, FL 32024

Project Title:
Marianna Kaiser
Building Type: User

4/30/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	19365 Btuh 0 Btuh 19365 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	19365 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

610 Norma Jean Glenn
Lake City, FL 32024

Project Title:
Marianna Kaiser

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	1.0ft.	4.0ft.	18.0	10.1	7.9	12	14	233 Btuh	
2	2 NFRC	0.25, 0.36	No	No	E	15.0f	4.0ft.	12.0	12.0	0.0	12	31	145 Btuh	
3	2 NFRC	0.25, 0.36	No	No	E	15.0f	4.0ft.	40.0	40.0	0.0	12	31	484 Btuh	
4	2 NFRC	0.25, 0.36	No	No	N	1.0ft.	4.0ft.	6.0	0.0	6.0	12	12	73 Btuh	
5	2 NFRC	0.25, 0.36	No	No	W	1.0ft.	4.0ft.	12.0	0.0	12.0	12	31	371 Btuh	
Window Total								88 (sqft)					1306 Btuh	
Walls	Type	U-Value	R-Value	Area(sqft)		HTM		Load						
				Cav/Sheath										
1	Frame - Wood - Ext	0.08	19.0/0.0	574.0		1.7		949 Btuh						
2	Frame - Wood - Ext	0.08	19.0/0.0	308.0		1.7		509 Btuh						
3	Frame - Wood - Ext	0.08	19.0/0.0	606.0		1.7		1002 Btuh						
4	Frame - Wood - Ext	0.08	19.0/0.0	328.0		1.7		542 Btuh						
Wall Total				1816 (sqft)				3003 Btuh						
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Exterior	20.0		13.8		276 Btuh								
2	Insulated - Exterior	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/Metal/RB	0.025	38.0/0.0	1607.0		0.86		1387 Btuh						
Ceiling Total				1607 (sqft)				1387 Btuh						
Floors	Type	R-Value		Size		HTM		Load						
1	Slab On Grade	0.0		1530 (ft-perimeter)		0.0		0 Btuh						
Floor Total				1530.0 (sqft)				0 Btuh						
Envelope Subtotal:										6248 Btuh				
Infiltration	Type	Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural	0.14		18360		1		42.3		880 Btuh				
Internal gain	Occupants		Btuh/occupant		Appliance		Load							
	8		X 230 +		1200		3040 Btuh							
Sensible Envelope Load:										10168 Btuh				
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)								(DGM of 0.000)		0 Btuh			
Sensible Load All Zones										10168 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

610 Norma Jean Glenn
Lake City, FL 32024

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Marianna Kaiser

4/30/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	10168 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	10168 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	10168 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1460 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3060 Btuh
	TOTAL GAIN	13228 Btuh

EQUIPMENT

1. Central Unit	#	13228 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