

# Residential System Sizing Calculation

## Summary

Project Title:  
Sparks Const - Forest Country Spec

, FL

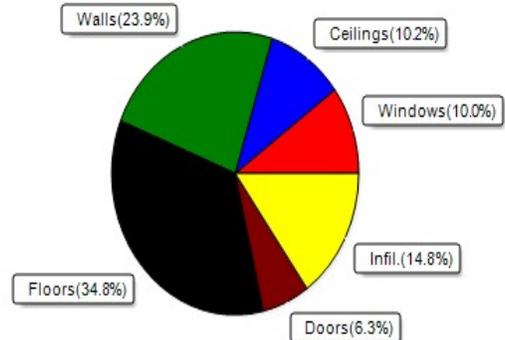
9/10/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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
<b>Total heating load calculation</b>	<b>39888</b>	<b>Btuh</b>	<b>Total cooling load calculation</b>	<b>39037</b>	<b>Btuh</b>
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	150.4	60000	Sensible (SHR = 0.75)	144.4	45000
Heat Pump + Auxiliary(0.0kW)	150.4	60000	Latent	190.4	15000
			<b>Total (Electric Heat Pump)</b>	<b>153.7</b>	<b>60000</b>

## WINTER CALCULATIONS

Winter Heating Load (for 3309 sqft)

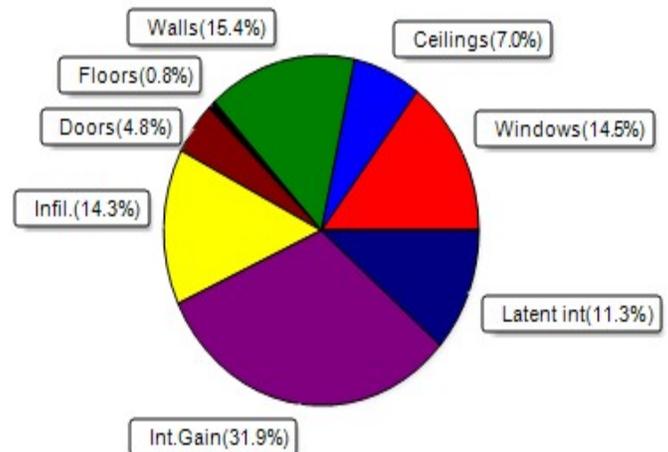
Load component	Area	Load	Unit
Window total	385 sqft	4004	Btuh
Wall total	2690 sqft	9552	Btuh
Door total	136 sqft	2502	Btuh
Ceiling total	3309 sqft	4054	Btuh
Floor total	See detail report	13889	Btuh
Infiltration	134 cfm	5886	Btuh
Duct loss		0	Btuh
<b>Subtotal</b>		<b>39888</b>	<b>Btuh</b>
Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
<b>TOTAL HEAT LOSS</b>		<b>39888</b>	<b>Btuh</b>



## SUMMER CALCULATIONS

Summer Cooling Load (for 3309 sqft)

Load component	Area	Load	Unit
Window total	385 sqft	5677	Btuh
Wall total	2690 sqft	5999	Btuh
Door total	136 sqft	1877	Btuh
Ceiling total	3309 sqft	2746	Btuh
Floor total		302	Btuh
Infiltration	101 cfm	2097	Btuh
Internal gain		12460	Btuh
Duct gain		0	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
Blower Load		0	Btuh
<b>Total sensible gain</b>		<b>31158</b>	<b>Btuh</b>
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		3479	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		4400	Btuh
<b>Total latent gain</b>		<b>7879</b>	<b>Btuh</b>
<b>TOTAL HEAT GAIN</b>		<b>39037</b>	<b>Btuh</b>



8th Edition

EnergyGauge® System Sizing

PREPARED BY: \_\_\_\_\_

DATE: \_\_\_\_\_ 9-10-25



# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title:      Climate: FL\_GAINESVILLE\_REGIONAL\_A  
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Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	SnglAsmb no airsp/DarkShingle	0.029	0.0/38.0	601.0	0.75	453 Btuh
2	SnglAsmb no airsp/DarkShingle	0.034	30.0/0.0	1086.0	0.99	1071 Btuh
3	SnglAsmb no airsp/DarkShingle	0.029	0.0/38.0	638.0	0.75	481 Btuh
4	SnglAsmb no airsp/DarkShingle	0.029	0.0/38.0	984.0	0.75	742 Btuh
<b>Ceiling Total</b>				<b>3309 (sqft)</b>		<b>2746 Btuh</b>
Floors	Type	R-Value	Size	HTM	Load	
1	Slab On Grade	0.0	984 (ft-perimeter)	0.0	0 Btuh	
2	Slab On Grade	0.0	638 (ft-perimeter)	0.0	0 Btuh	
3	Slab On Grade	0.0	1086 (ft-perimeter)	0.0	0 Btuh	
4	Raised Wood - Adj	30.0	601 (sqft)	0.5	302 Btuh	
<b>Floor Total</b>				<b>3309.0 (sqft)</b>		<b>302 Btuh</b>
<b>Envelope Subtotal:</b>						<b>16601 Btuh</b>
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.18	33422	1	100.6	2097 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance	Load	
		22	X 230	+ 7400	12460 Btuh	
<b>Sensible Envelope Load:</b>						<b>31158 Btuh</b>
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)					0 Btuh
<b>Sensible Load All Zones</b>						<b>31158 Btuh</b>

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title: Climate:FL\_GAINESVILLE\_REGIONAL\_A  
Sparks Const - Forest Country Spec

, FL

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### WHOLE HOUSE TOTALS

<b>Whole House Totals for Cooling</b>	<b>Sensible Envelope Load All Zones</b>	<b>31158 Btuh</b>
	Sensible Duct Load	0 Btuh
	<b>Total Sensible Zone Loads</b>	<b>31158 Btuh</b>
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	<b>Total sensible gain</b>	<b>31158 Btuh</b>
	Latent infiltration gain (for 51 gr. humidity difference)	3479 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (22.0 people @ 200 Btuh per person)	4400 Btuh
	Latent other gain	0 Btuh
	<b>Latent total gain</b>	<b>7879 Btuh</b>
	<b>TOTAL GAIN</b>	<b>39037 Btuh</b>

### EQUIPMENT

1. Central Unit	#	60000 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)



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# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Project Title:

Sparks Const - Forest Country Spec

Building Type: User

, FL

9/10/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)

Winter Setpoint: 70 °F (Required Manual J default)

### 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	30.0		10.4	312 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	54.0		10.4	562 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	16.0		10.4	166 Btuh
4	2, NFRC 0.20	Vinyl	0.26	E	36.0		10.4	374 Btuh
5	2, NFRC 0.20	Vinyl	0.26	E	3.0		10.4	31 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	36.0		10.4	374 Btuh
7	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	36.0		10.4	374 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	25.0		10.4	260 Btuh
10	2, NFRC 0.20	Vinyl	0.26	W	18.0		10.4	187 Btuh
11	2, NFRC 0.20	Vinyl	0.26	W	36.0		10.4	374 Btuh
12	2, NFRC 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
13	2, NFRC 0.20	Vinyl	0.26	E	25.0		10.4	260 Btuh
14	2, NFRC 0.20	Vinyl	0.26	W	25.0		10.4	260 Btuh
Window Total					385.0(sqft)			4004 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	170		3.55	604 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	180		3.55	639 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	230		3.55	817 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	25		3.55	89 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	156		3.55	554 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	254		3.55	900 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	144 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	246		3.55	873 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	308 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	127		3.55	452 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	308 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	434		3.55	1542 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	105		3.55	373 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	147 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	147 Btuh
21	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	147 Btuh
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	147 Btuh
Wall Total					2690(sqft)			9552 Btuh

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Project Title:  
Sparks Const - Forest Country Spec  
Building Type: User

, FL

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Doors	Type	Storm Ueff.	Area	X	HTM=	Load	
1	Insulated - Exterior, n	(0.460)	48		18.4	883 Btuh	
2	Insulated - Exterior, n	(0.460)	20		18.4	368 Btuh	
3	Insulated - Garage, n	(0.460)	20		18.4	368 Btuh	
4	Insulated - Exterior, n	(0.460)	48		18.4	883 Btuh	
	Door Total		136(sqft)			2502Btuh	
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Shing	(0.029)	0.0/38.0	601		1.2	697 Btuh
2	Single as/D/Shing	(0.034)	30.0/0.0	1086		1.4	1477 Btuh
3	Single as/D/Shing	(0.029)	0.0/38.0	638		1.2	740 Btuh
4	Single as/D/Shing	(0.029)	0.0/38.0	984		1.2	1141 Btuh
	Ceiling Total		3309(sqft)				4054Btuh
Floors	Type	Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	134.0 ft(perim.)		47.2	6325 Btuh
2	Slab On Grade	(1.180)	0.0	90.0 ft(perim.)		47.2	4248 Btuh
3	Slab On Grade	(1.180)	0.0	52.0 ft(perim.)		47.2	2454 Btuh
4	Raised Wood - Adj	(0.036)	30.0	601.0 sqft		1.4	862 Btuh
	Floor Total		3309 sqft				13889 Btuh
<b>Envelope Subtotal:</b>							<b>34002 Btuh</b>
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
	Natural	0.24	33422	1.00	134.2	5886 Btuh	
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)					0 Btuh	
All Zones	<b>Sensible Subtotal All Zones</b>					<b>39888 Btuh</b>	

### WHOLE HOUSE TOTALS

<b>Totals for Heating</b>	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	39888 Btuh 0 Btuh 39888 Btuh
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### EQUIPMENT

1. Electric Heat Pump	#	60000 Btuh
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# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Project Title:  
Sparks Const - Forest Country Spec  
Building Type: User

, FL

9/10/2025

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)



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