

# Residential System Sizing Calculation

## Summary

Project Title:  
Gardner Residence

, FL

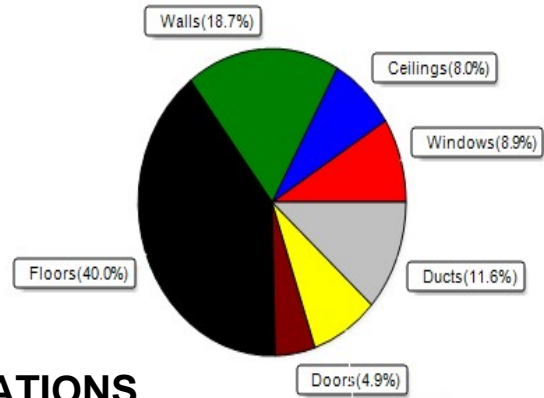
9/23/2025

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>43860</b>	<b>Btuh</b>	<b>Total cooling load calculation</b>	<b>37309</b>	<b>Btuh</b>
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	109.4	48000	Sensible (SHR = 0.75)	110.6	36000
Heat Pump + Auxiliary(0.0kW)	109.4	48000	Latent	252.0	12000
			<b>Total (Electric Heat Pump)</b>	<b>128.7</b>	<b>48000</b>

## WINTER CALCULATIONS

Winter Heating Load (for 2761 sqft)

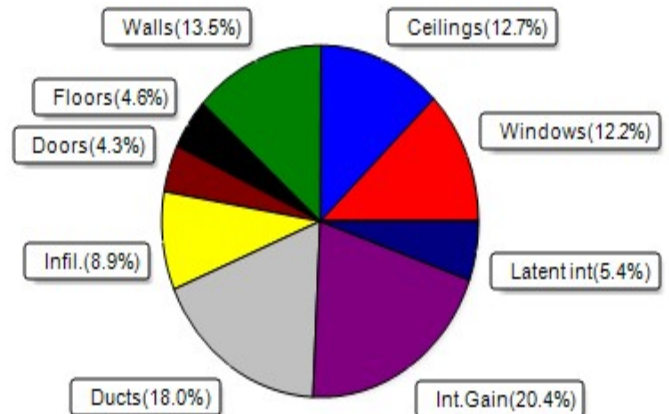
Load component	Load
Window total	374 sqft 3890 Btuh
Wall total	2308 sqft 8192 Btuh
Door total	116 sqft 2134 Btuh
Ceiling total	2761 sqft 3517 Btuh
Floor total	See detail report 17526 Btuh
Infiltration	80 cfm 3518 Btuh
Duct loss	5083 Btuh
<b>Subtotal</b>	<b>43860 Btuh</b>
Ventilation	Ex:0 cfm; Sup:0 cfm 0 Btuh
<b>TOTAL HEAT LOSS</b>	<b>43860 Btuh</b>



## SUMMER CALCULATIONS

Summer Cooling Load (for 2761 sqft)

Load component	Load
Window total	374 sqft 4552 Btuh
Wall total	2308 sqft 5032 Btuh
Door total	116 sqft 1601 Btuh
Ceiling total	2761 sqft 4748 Btuh
Floor total	1723 Btuh
Infiltration	60 cfm 1253 Btuh
Internal gain	7600 Btuh
Duct gain	6039 Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm 0 Btuh
Blower Load	0 Btuh
<b>Total sensible gain</b>	<b>32548 Btuh</b>
Latent gain(ducts)	682 Btuh
Latent gain(infiltration)	2079 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	2000 Btuh
<b>Total latent gain</b>	<b>4761 Btuh</b>
<b>TOTAL HEAT GAIN</b>	<b>37309 Btuh</b>



8th Edition

EnergyGauge® System Sizing

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

DATE: 9-23-25

# System Sizing Calculations - Summer

## Residential Load - Whole House Component Details

Project Title:  
Gardner Residence

, FL

9/23/2025

Reference City: Gainesville, FL (Defaults)  
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)  
Summer Setpoint: 75 °F (Required Manual J default)

### 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	1.3ft	8.0	0.0	8.0	9	9	73	Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	36.0	0.0	36.0	9	9	329	Btuh
3	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	20.0	0.0	20.0	9	9	183	Btuh
4	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	63.0	0.0	63.0	9	9	576	Btuh
5	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	36.0	0.0	36.0	9	9	329	Btuh
6	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh
7	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	8.0	0.0	8.0	9	24	194	Btuh
8	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh
9	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	36.0	36.0	0.0	9	11	329	Btuh
10	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	90.0	90.0	0.0	9	11	823	Btuh
11	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	15.0	0.0	15.0	9	24	363	Btuh
12	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	16.0	0.0	16.0	9	24	388	Btuh
13	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	10.0	10.0	0.0	9	11	91	Btuh
Window Total								374 (sqft)					4552 Btuh	
Walls	Type	U-Value	R-Value	Area(sqft)		HTM		Load						
				Cav/Sheath										
1	Frame - Wood - Ext	0.09	13.0/0.0	172.0		2.3		389 Btuh						
2	Frame - Wood - Ext	0.09	13.0/0.0	189.0		2.3		428 Btuh						
3	Frame - Wood - Ext	0.09	13.0/0.0	281.5		2.3		637 Btuh						
4	Frame - Wood - Ext	0.09	13.0/0.0	202.0		2.3		457 Btuh						
5	Frame - Wood - Ext	0.09	13.0/0.0	45.0		2.3		102 Btuh						
6	Frame - Wood - Ext	0.09	13.0/0.0	105.0		2.3		238 Btuh						
7	Frame - Wood - Ext	0.09	13.0/0.0	78.0		2.3		177 Btuh						
8	Frame - Wood - Ext	0.09	13.0/0.0	81.0		2.3		183 Btuh						
9	Frame - Wood - Ext	0.09	13.0/0.0	182.0		2.3		412 Btuh						
10	Frame - Wood - Adj	0.09	13.0/0.0	331.0		1.7		558 Btuh						
11	Frame - Wood - Ext	0.09	13.0/0.0	275.0		2.3		622 Btuh						
12	Frame - Wood - Ext	0.09	13.0/0.0	132.0		2.3		299 Btuh						
13	Frame - Wood - Ext	0.09	13.0/0.0	102.0		2.3		231 Btuh						
14	Frame - Wood - Ext	0.09	13.0/0.0	132.0		2.3		299 Btuh						
Wall Total				2308 (sqft)				5032 Btuh						
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Exterior	48.0		13.8		662 Btuh								
2	Insulated - Exterior	48.0		13.8		662 Btuh								
3	Insulated - Garage	20.0		13.8		276 Btuh								
Door Total		116 (sqft)				1601 Btuh								
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM		Load							
1	Vented Attic/DarkShingle	0.032	30.0/0.0	2441.0	1.72		4198 Btuh							
2	Vented Attic/DarkShingle	0.032	30.0/0.0	320.0	1.72		550 Btuh							
Ceiling Total				2761 (sqft)		4748 Btuh								
Floors	Type	R-Value		Size	HTM		Load							
1	Slab On Grade	0.0		2441 (ft-perimeter)	0.0		0 Btuh							
2	Raised Wood - Adj	0.0		320 (sqft)	5.4		1723 Btuh							
Floor Total				2761.0 (sqft)		1723 Btuh								

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title: Climate:FL\_GAINESVILLE\_REGIONAL\_A  
Gardner Residence

, FL

9/23/2025

	<b>Envelope Subtotal:</b>	<b>17655 Btuh</b>				
<b>Infiltration</b>	Type Natural	Average ACH 0.15	Volume(cuft) 24529	Wall Ratio 1	CFM= 60.1	Load 1253 Btuh
<b>Internal gain</b>		Occupants 10	Btuh/occupant X 230	Appliance +	5300	Load 7600 Btuh
	<b>Sensible Envelope Load:</b>					<b>26509 Btuh</b>
<b>Duct load</b>	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.228)					<b>6039 Btuh</b>
	<b>Sensible Load All Zones</b>					<b>32548 Btuh</b>

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title: Climate:FL\_GAINESVILLE\_REGIONAL\_A  
 Gardner Residence

, FL

9/23/2025

### WHOLE HOUSE TOTALS

<b>Whole House Totals for Cooling</b>	<b>Sensible Envelope Load All Zones</b>	<b>26509 Btuh</b>
	Sensible Duct Load	6039 Btuh
	<b>Total Sensible Zone Loads</b>	<b>32548 Btuh</b>
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	<b>Total sensible gain</b>	<b>32548 Btuh</b>
	Latent infiltration gain (for 51 gr. humidity difference)	2079 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	682 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	<b>Latent total gain</b>	<b>4761 Btuh</b>
	<b>TOTAL GAIN</b>	<b>37309 Btuh</b>

### EQUIPMENT

1. Central Unit	#	48000 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

Project Title:  
Gardner Residence  
Building Type: User

, FL

9/23/2025

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	8.0		10.4	83 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	20.0		10.4	208 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	63.0		10.4	655 Btuh
5	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	18.0		10.4	187 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	8.0		10.4	83 Btuh
8	2, NFRC 0.20	Vinyl	0.26	E	18.0		10.4	187 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	36.0		10.4	374 Btuh
10	2, NFRC 0.20	Vinyl	0.26	S	90.0		10.4	936 Btuh
11	2, NFRC 0.20	Vinyl	0.26	W	15.0		10.4	156 Btuh
12	2, NFRC 0.20	Vinyl	0.26	W	16.0		10.4	166 Btuh
13	2, NFRC 0.20	Vinyl	0.26	S	10.0		10.4	104 Btuh
Window Total					374.0(sqft)			3890 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	172		3.55	611 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	189		3.55	671 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	282		3.55	999 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	202		3.55	717 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	105		3.55	373 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	182		3.55	646 Btuh
10	Frame - Wood	- Adj	(0.089)	13.0/0.0	331		3.55	1175 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	275		3.55	976 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	102		3.55	362 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
Wall Total					2308(sqft)			8192 Btuh
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)		48		18.4	883 Btuh
3	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
Door Total					116(sqft)			2134Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	2441		1.3	3110 Btuh
2	Flat ceil/D/Shing		(0.032)	30.0/0.0	320		1.3	408 Btuh
Ceiling Total					2761(sqft)			3517Btuh

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Project Title:  
Gardner Residence  
Building Type: User

, FL

9/23/2025

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	267.0 ft(perim.)	47.2	12602 Btuh
2	Raised Wood - Adj	(0.385)	0.0	320.0 sqft	15.4	4923 Btuh
	<b>Floor Total</b>			<b>2761 sqft</b>		<b>17526 Btuh</b>
<b>Envelope Subtotal:</b>						<b>35259 Btuh</b>
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.20	24529	1.00	80.2	3518 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.131)					5083 Btuh
All Zones	<b>Sensible Subtotal All Zones</b>					<b>43860 Btuh</b>

### WHOLE HOUSE TOTALS

<b>Totals for Heating</b>	Subtotal Sensible Heat Loss	43860 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	<b>Total Heat Loss</b>	<b>43860 Btuh</b>

### EQUIPMENT

1. Electric Heat Pump	#	48000 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