

# System Sizing Calculation

## Summary

Project Title  
Willis Office

, FL

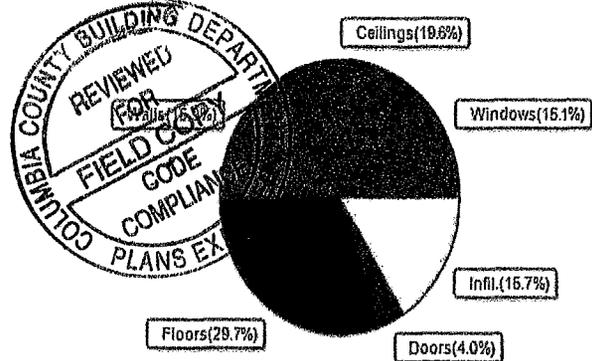
3/2/2026

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>49315</b>	<b>Btuh</b>	<b>Total cooling load calculation</b>	<b>67911</b>	<b>Btuh</b>
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	243.3	120000	Sensible (SHR = 0.78)	186.0	93600
Heat Pump + Auxiliary(0 0kW)	243	120000	Latent	150.2	26400
			Total (Electric Heat Pump)	176.7	120000

## WINTER CALCULATIONS

Winter Heating Load (for 5150 sqft)

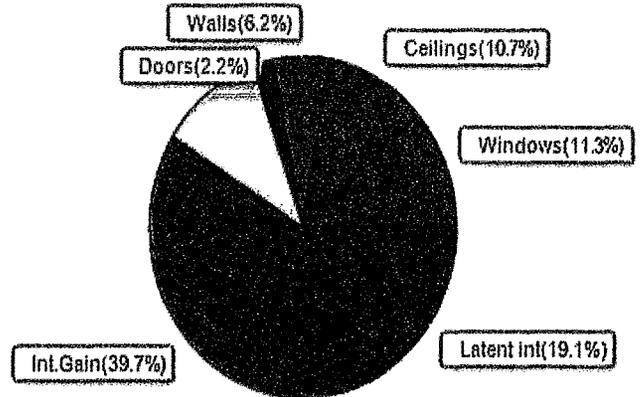
Load component		Load	
Window total	716 sqft	7450	Btuh
Wall total	2531 sqft	7822	Btuh
Door total	108 sqft	1987	Btuh
Ceiling total	5150 sqft	9680	Btuh
Floor total	5150 sqft	14632	Btuh
Infiltration	177 cfm	7743	Btuh
Duct loss		0	Btuh
<b>Subtotal</b>		<b>49315</b>	<b>Btuh</b>
Ventilation	Ex 0 cfm, Sup 0 cfm	0	Btuh
<b>TOTAL HEAT LOSS</b>		<b>49315</b>	<b>Btuh</b>



## SUMMER CALCULATIONS

Summer Cooling Load (for 5150 sqft)

Load component		Load	
Window total	716 sqft	7690	Btuh
Wall total	2531 sqft	4185	Btuh
Door total	108 sqft	1490	Btuh
Ceiling total	5150 sqft	7260	Btuh
Floor total		0	Btuh
Infiltration	132 cfm	2759	Btuh
Internal gain		26950	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>50334</b>	<b>Btuh</b>
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		4577	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		13000	Btuh
<b>Total latent gain</b>		<b>17577</b>	<b>Btuh</b>
<b>TOTAL HEAT GAIN</b>		<b>67911</b>	<b>Btuh</b>



8th Edition

EnergyGauge® System Sizing

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

DATE 3-2-26

# System Sizing Calculations - Summer

## Residential Load - Whole House Component Details

Project Title:  
Willis Office

, FL

3/2/2026

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	90.0	0.0	90.0	9	9	823	Btuh
2	2 NFRC	0.20	0.26	No	No	E	1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh
3	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	108.0	108.0	0.0	9	11	988	Btuh
4	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	65.1	39.5	25.5	9	11	635	Btuh
5	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	81.6	39.5	42.0	9	11	812	Btuh
6	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	57.0	43.1	13.9	9	11	543	Btuh
7	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	81.6	39.5	42.0	9	11	812	Btuh
8	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	65.1	39.5	25.5	9	11	635	Btuh
9	2 NFRC	0.20	0.26	No	No	S	1.5ft	1.3ft	108.0	108.0	0.0	9	11	988	Btuh
10	2 NFRC	0.20	0.26	No	No	W	1.5ft	1.3ft	15.0	0.0	15.0	9	24	363	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
Window Total											716 (sqft)		7690 Btuh		
Walls	Type	U-Value	R-Value	Area(sqft)		HTM	Load								
				Cav/Sheath											
1	Frame - Wood - Ext	0.08	19.0/0.0	910.0		1.7	1505 Btuh								
2	Frame - Wood - Ext	0.08	19.0/0.0	430.0		1.7	711 Btuh								
3	Frame - Wood - Ext	0.08	19.0/0.0	242.0		1.7	400 Btuh								
4	Frame - Wood - Ext	0.08	19.0/0.0	50.0		1.7	83 Btuh								
5	Frame - Wood - Ext	0.08	19.0/0.0	156.7		1.7	259 Btuh								
6	Frame - Wood - Ext	0.08	19.0/0.0	50.0		1.7	83 Btuh								
7	Frame - Wood - Ext	0.08	19.0/0.0	242.0		1.7	400 Btuh								
8	Frame - Wood - Ext	0.08	19.0/0.0	450.0		1.7	744 Btuh								
Wall Total				2531 (sqft)			4185 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										
3	Insulated - Exterior	48.0		13.8	662 Btuh										
4	Insulated - Exterior	20.0		13.8	276 Btuh										
Door Total		108 (sqft)			1490 Btuh										
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load									
1	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0	5150.0	1.41	7260 Btuh									
Ceiling Total				5150 (sqft)		7260 Btuh									
Floors	Type	R-Value	Size	HTM	Load										
1	Slab On Grade	0.0	5150 (ft-perimeter)	0.0	0 Btuh										
Floor Total				5150.0 (sqft)		0 Btuh									
<b>Envelope Subtotal:</b>						<b>20625 Btuh</b>									

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title.      Climate: FL\_GAINESVILLE\_REGIONAL\_A  
Willis Office

, FL

3/2/2026

<b>Infiltration</b>	Type Natural	Average ACH 0 15	Volume(cuft) 51500	Wall Ratio 1	CFM= 132.4	Load 2759 Btuh
<b>Internal gain</b>		Occupants 65	Btuh/occupant X 230	+	Appliance 12000	Load 26950 Btuh
	Sensible Envelope Load.					50334 Btuh
<b>Duct load</b>	Extremely sealed, Supply(R6 0-Condi), Return(R6 0-Condi)				(DGM of 0.000)	0 Btuh
	<b>Sensible Load All Zones</b>					<b>50334 Btuh</b>

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title:  
Willis Office

Climate:FL\_GAINESVILLE\_REGIONAL\_A

, FL

3/2/2026

### WHOLE HOUSE TOTALS

<b>Whole House Totals for Cooling</b>	<b>Sensible Envelope Load All Zones</b>	<b>50334 Btuh</b>
	Sensible Duct Load	0 Btuh
	<b>Total Sensible Zone Loads</b>	<b>50334 Btuh</b>
	Sensible ventilation (Ex.0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	<b>Total sensible gain</b>	<b>50334 Btuh</b>
	Latent infiltration gain (for 51 gr humidity difference)	4577 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (65 0 people @ 200 Btuh per person)	13000 Btuh
	Latent other gain	0 Btuh
	<b>Latent total gain</b>	<b>17577 Btuh</b>
<b>TOTAL GAIN</b>	<b>67911 Btuh</b>	

### EQUIPMENT

1 Central Unit	Multiple #Multiple	120000 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))  
 (Omt - compass orientation)



Version 8

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Project Title:  
Willis Office  
Building Type: User

, FL

3/2/2026

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	90.0		10.4 936 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4 312 Btuh
3	2, NFRC 0.20	Vinyl	0.26	S	108.0		10.4 1123 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	65.1		10.4 677 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	81.6		10.4 848 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	57.0		10.4 593 Btuh
7	2, NFRC 0.20	Vinyl	0.26	S	81.6		10.4 848 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	65.1		10.4 677 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	108.0		10.4 1123 Btuh
10	2, NFRC 0.20	Vinyl	0.26	W	15.0		10.4 156 Btuh
11	2, NFRC 0.20	Vinyl	0.26	W	15.0		10.4 156 Btuh
					Window Total		716.3(sqft) 7450 Btuh
Walls	Type	Ornt	Ueff.	R-Value (Cav/Sh)	Area X	HTM= Load	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	910	3.09	2813 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	430	3.09	1329 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	242	3.09	748 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	50	3.09	155 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	157	3.09	484 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	50	3.09	155 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	242	3.09	748 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	450	3.09	1391 Btuh
					Wall Total		2531(sqft) 7822 Btuh
Doors	Type	Storm	Ueff.	Area X	HTM= Load	Load	Load
1	Insulated - Exterior, n		(0.460)	20	18.4	368 Btuh	
2	Insulated - Exterior, n		(0.460)	20	18.4	368 Btuh	
3	Insulated - Exterior, n		(0.460)	48	18.4	883 Btuh	
4	Insulated - Exterior, n		(0.460)	20	18.4	368 Btuh	
					Door Total		108(sqft) 1987 Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM= Load	Load	Load
1	Single as/D/Metal	(0.047)	21.0/0.0	5150	1.9	9680 Btuh	
					Ceiling Total		5150(sqft) 9680 Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM= Load	Load	Load
1	Slab On Grade	(1.180)	0.0	310.0 ft(perim.)	47.2	14632 Btuh	
					Floor Total		5150 sqft 14632 Btuh
Envelope Subtotal.							41572 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM= Load	Load	Load
	Natural	0.21	51500	1.00	176.5	7743 Btuh	

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

, FL

Project Title.  
Willis Office  
Building Type: User

3/2/2026

<b>Duct load</b>	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)	0 Btuh
<b>All Zones</b>	<b>Sensible Subtotal All Zones</b>	<b>49315 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	49315 Btuh 0 Btuh 49315 Btuh
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### EQUIPMENT

1 Electric Heat Pump	Multiple #Multiple	120000 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