

# Residential System Sizing Calculation

## Summary

Judy McHugh  
SW Koonville Ave  
Lake City, FL

Project Title:  
250938 McHugh

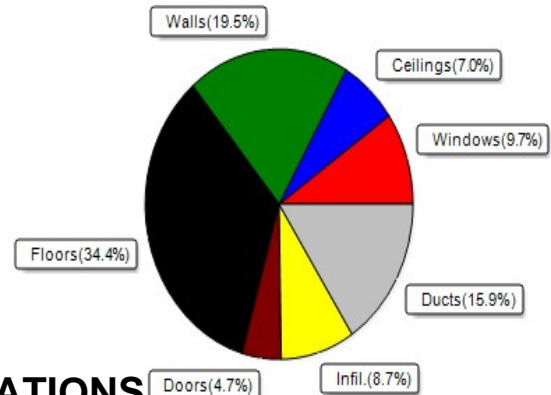
10/15/2025

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>27131</b>	<b>Btuh</b>	<b>Total cooling load calculation</b>	<b>25579</b>	<b>Btuh</b>
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	106.9	29000	Sensible (SHR = 0.75)	97.6	21750
Heat Pump + Auxiliary(0.0kW)	106.9	29000	Latent	219.6	7250
			Total (Electric Heat Pump)	113.4	29000

## WINTER CALCULATIONS

Winter Heating Load (for 1772 sqft)

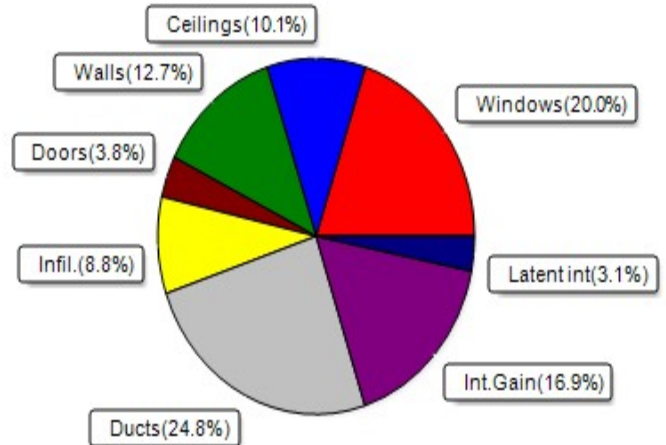
Load component	Load	
Window total	219 sqft	2628 Btuh
Wall total	1493 sqft	5300 Btuh
Door total	80 sqft	1280 Btuh
Ceiling total	1877 sqft	1906 Btuh
Floor total	1772 sqft	9346 Btuh
Infiltration	54 cfm	2371 Btuh
Duct loss		4301 Btuh
<b>Subtotal</b>		<b>27131 Btuh</b>
Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh
<b>TOTAL HEAT LOSS</b>		<b>27131 Btuh</b>



## SUMMER CALCULATIONS

Summer Cooling Load (for 1772 sqft)

Load component	Load	
Window total	219 sqft	5110 Btuh
Wall total	1493 sqft	3236 Btuh
Door total	80 sqft	960 Btuh
Ceiling total	1877 sqft	2573 Btuh
Floor total		0 Btuh
Infiltration	41 cfm	845 Btuh
Internal gain		4320 Btuh
Duct gain		5234 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh
Blower Load		0 Btuh
<b>Total sensible gain</b>		<b>22277 Btuh</b>
Latent gain(ducts)		1101 Btuh
Latent gain(infiltration)		1401 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		800 Btuh
<b>Total latent gain</b>		<b>3302 Btuh</b>
<b>TOTAL HEAT GAIN</b>		<b>25579 Btuh</b>



8th Edition

EnergyGauge® System Sizing  
PREPARED BY: **Evan Beamsley**  
DATE: **2025-10-15**

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Judy McHugh  
 SW Koonville Ave  
 Lake City, FL

Project Title:  
 250938 McHugh  
 Building Type: User

10/15/2025

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 0.22	Vinyl	0.30	N	30.0		12.0	360 Btuh
2	2, NFRC 0.22	Vinyl	0.30	NW	12.0		12.0	144 Btuh
3	2, NFRC 0.22	Vinyl	0.30	N	18.0		12.0	216 Btuh
4	2, NFRC 0.22	Vinyl	0.30	NE	12.0		12.0	144 Btuh
5	2, NFRC 0.22	Vinyl	0.30	N	26.7		12.0	320 Btuh
6	2, NFRC 0.22	Vinyl	0.30	N	30.0		12.0	360 Btuh
7	2, NFRC 0.22	Vinyl	0.30	E	4.0		12.0	48 Btuh
8	2, NFRC 0.22	Vinyl	0.30	S	30.0		12.0	360 Btuh
9	2, NFRC 0.22	Vinyl	0.30	S	13.3		12.0	160 Btuh
10	2, NFRC 0.22	Vinyl	0.30	S	30.0		12.0	360 Btuh
11	2, NFRC 0.22	Vinyl	0.30	S	9.0		12.0	108 Btuh
12	2, NFRC 0.22	Vinyl	0.30	S	4.0		12.0	48 Btuh
	Window Total				219.0(sqft)			2628 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	123		3.55	437 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	9		3.55	32 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	12		3.55	43 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	112 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	12		3.55	43 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.55	369 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	123		3.55	437 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	280		3.55	992 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	70		3.55	249 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	124		3.55	438 Btuh
15	Frame - Wood	- Adj	(0.089)	13.0/0.0	55		3.55	195 Btuh
16	Frame - Wood	- Adj	(0.089)	13.0/0.0	117		3.55	415 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.55	804 Btuh
18	Frame - Wood	- Adj	(0.089)	13.0/0.0	26		3.55	91 Btuh
19	Frame - Wood	- Adj	(0.089)	13.0/0.0	24		3.55	84 Btuh
20	Frame - Wood	- Adj	(0.089)	13.0/0.0	26		3.55	91 Btuh
	Wall Total				1493(sqft)			5300 Btuh

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

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Lake City, FL

Project Title:  
250938 McHugh  
Building Type: User

10/15/2025

<b>Doors</b>	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n (0.400)		13	16.0	213 Btuh
2	Insulated - Exterior,	n (0.400)		7	16.0	107 Btuh
3	Insulated - Garage,	n (0.400)		20	16.0	320 Btuh
4	Insulated - Garage,	n (0.400)		40	16.0	640 Btuh
	Door Total			80(sqft)		1280Btuh
<b>Ceilings</b>	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing	(0.025)	38.0/0.0	1772	1.0	1799 Btuh
2	Knee wall/D/Shing	(0.025)	38.0/0.0	105	1.0	107 Btuh
	Ceiling Total			1877(sqft)		1906Btuh
<b>Floors</b>	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	198.0 ft(perim.)	47.2	9346 Btuh
	Floor Total			1772 sqft		9346 Btuh
<b>Envelope Subtotal:</b>						<b>20459 Btuh</b>
<b>Infiltration</b>	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.20	16302	1.00	54.0	2371 Btuh
<b>Duct load</b>	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.188)	4301 Btuh
<b>All Zones</b>	<b>Sensible Subtotal All Zones</b>					<b>27131 Btuh</b>

### WHOLE HOUSE TOTALS

<b>Totals for Heating</b>	Subtotal Sensible Heat Loss	27131 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	27131 Btuh

### EQUIPMENT

1. Electric Heat Pump	#	29000 Btuh
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# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Judy McHugh  
SW Koonville Ave  
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Project Title:  
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Building Type: User

10/15/2025

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)



Version 8

# System Sizing Calculations - Summer

## Residential Load - Whole House Component Details

Judy McHugh  
SW Koonville Ave  
Lake City, FL

Project Title:  
250938 McHugh

10/15/2025

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	0.22, 0.30	No	No	N	1.5ft	2.0ft	30.0	0.0	30.0	10	27	807	Btuh	
2	2 NFRC	0.22, 0.30	No	No	NW	4.0ft	2.0ft	12.0	0.0	12.0	10	20	246	Btuh	
3	2 NFRC	0.22, 0.30	No	No	N	1.5ft	2.0ft	18.0	0.0	18.0	10	27	484	Btuh	
4	2 NFRC	0.22, 0.30	No	No	NE	16.0f	2.0ft	12.0	12.0	0.0	10	21	124	Btuh	
5	2 NFRC	0.22, 0.30	No	No	N	11.5f	1.0ft	26.7	26.7	0.0	10	27	275	Btuh	
6	2 NFRC	0.22, 0.30	No	No	N	1.5ft	2.0ft	30.0	0.0	30.0	10	27	807	Btuh	
7	2 NFRC	0.22, 0.30	No	No	E	1.5ft	2.0ft	4.0	4.0	0.0	10	12	41	Btuh	
8	2 NFRC	0.22, 0.30	No	No	S	1.5ft	2.0ft	30.0	0.0	30.0	10	27	807	Btuh	
9	2 NFRC	0.22, 0.30	No	No	S	7.5ft	1.5ft	13.3	9.4	3.9	10	27	202	Btuh	
10	2 NFRC	0.22, 0.30	No	No	S	1.5ft	2.0ft	30.0	0.0	30.0	10	27	807	Btuh	
11	2 NFRC	0.22, 0.30	No	No	S	1.5ft	2.0ft	9.0	0.0	9.0	10	27	242	Btuh	
12	2 NFRC	0.22, 0.30	No	No	S	1.5ft	2.0ft	4.0	0.0	4.0	10	27	108	Btuh	
Excursion A															
Window Total										219 (sqft)				5110 Btuh	
Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load									
			Cav/Sheath												
1	Frame - Wood - Ext	0.09	13.0/0.0	123.0	2.3	278	Btuh								
2	Frame - Wood - Ext	0.09	13.0/0.0	18.0	2.3	41	Btuh								
3	Frame - Wood - Ext	0.09	13.0/0.0	9.0	2.3	20	Btuh								
4	Frame - Wood - Ext	0.09	13.0/0.0	12.0	2.3	27	Btuh								
5	Frame - Wood - Ext	0.09	13.0/0.0	31.5	2.3	71	Btuh								
6	Frame - Wood - Ext	0.09	13.0/0.0	12.0	2.3	27	Btuh								
7	Frame - Wood - Ext	0.09	13.0/0.0	104.0	2.3	235	Btuh								
8	Frame - Wood - Ext	0.09	13.0/0.0	123.0	2.3	278	Btuh								
9	Frame - Wood - Ext	0.09	13.0/0.0	279.5	2.3	633	Btuh								
10	Frame - Wood - Ext	0.09	13.0/0.0	78.0	2.3	177	Btuh								
11	Frame - Wood - Ext	0.09	13.0/0.0	18.0	2.3	41	Btuh								
12	Frame - Wood - Ext	0.09	13.0/0.0	70.0	2.3	158	Btuh								
13	Frame - Wood - Ext	0.09	13.0/0.0	18.0	2.3	41	Btuh								
14	Frame - Wood - Ext	0.09	13.0/0.0	123.5	2.3	280	Btuh								
15	Frame - Wood - Adj	0.09	13.0/0.0	55.0	1.7	93	Btuh								
16	Frame - Wood - Adj	0.09	13.0/0.0	117.0	1.7	197	Btuh								
17	Frame - Wood - Ext	0.09	13.0/0.0	226.5	2.3	513	Btuh								
18	Frame - Wood - Adj	0.09	13.0/0.0	25.5	1.7	43	Btuh								
19	Frame - Wood - Adj	0.09	13.0/0.0	23.8	1.7	40	Btuh								
20	Frame - Wood - Adj	0.09	13.0/0.0	25.5	1.7	43	Btuh								
Wall Total				1493 (sqft)		3236 Btuh									
Doors	Type	Area (sqft)	HTM	Load											
1	Insulated - Exterior	13.3	12.0	160	Btuh										
2	Insulated - Exterior	6.7	12.0	80	Btuh										
3	Insulated - Garage	20.0	12.0	240	Btuh										
4	Insulated - Garage	40.0	12.0	480	Btuh										
Door Total		80 (sqft)		960 Btuh											
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load									
1	Vented Attic/DarkShingle	0.025	38.0/0.0	1772.0	1.37	2429	Btuh								
2	Knee wall to attic/DarkShingle	0.025	38.0/0.0	105.0	1.37	144	Btuh								
Ceiling Total				1877 (sqft)		2573 Btuh									

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Judy McHugh  
 SW Koonville Ave  
 Lake City, FL

Project Title:  
 250938 McHugh

Climate:FL\_GAINESVILLE\_REGIONAL\_A

10/15/2025

<b>Floors</b>	Type	R-Value	Size	HTM	Load	
1	Slab On Grade	0.0	1772 (ft-perimeter)	0.0	0 Btuh	
	Floor Total		1772.0 (sqft)		0 Btuh	
	Envelope Subtotal:				11878 Btuh	
<b>Infiltration</b>	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.15	16302	1	40.5	845 Btuh
<b>Internal gain</b>		Occupants	Btuh/occupant		Appliance	Load
		4	X 230	+	3400	4320 Btuh
	Sensible Envelope Load:				17043 Btuh	
<b>Duct load</b>	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.307)	5234 Btuh	
	<b>Sensible Load All Zones</b>				<b>22277 Btuh</b>	

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Judy McHugh  
 SW Koonville Ave  
 Lake City, FL

Project Title:  
 250938 McHugh

Climate:FL\_GAINESVILLE\_REGIONAL\_A

10/15/2025

### WHOLE HOUSE TOTALS

<b>Whole House Totals for Cooling</b>	<b>Sensible Envelope Load All Zones</b>	<b>17043 Btuh</b>
	Sensible Duct Load	5234 Btuh
	<b>Total Sensible Zone Loads</b>	<b>22277 Btuh</b>
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	<b>Total sensible gain</b>	<b>22277 Btuh</b>
	Latent infiltration gain (for 51 gr. humidity difference)	1401 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1101 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	<b>Latent total gain</b>	<b>3302 Btuh</b>
	<b>TOTAL GAIN</b>	<b>25579 Btuh</b>

### EQUIPMENT

1. Central Unit	#	29000 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