

Residential System Sizing Calculation

Summary

Project Title:
Paschall Residence

, FL

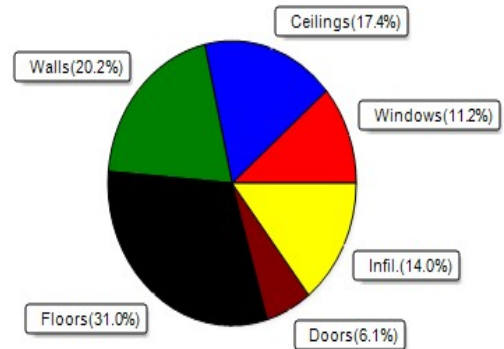
2/27/2025

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
Total heating load calculation	35025 Btuh	Total cooling load calculation	29727 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	137.0 48000	Sensible (SHR = 0.75)	145.1 36000
Heat Pump + Auxiliary(0.0kW)	137.0 48000	Latent	244.5 12000
		Total (Electric Heat Pump)	161.5 48000

WINTER CALCULATIONS

Winter Heating Load (for 3250 sqft)

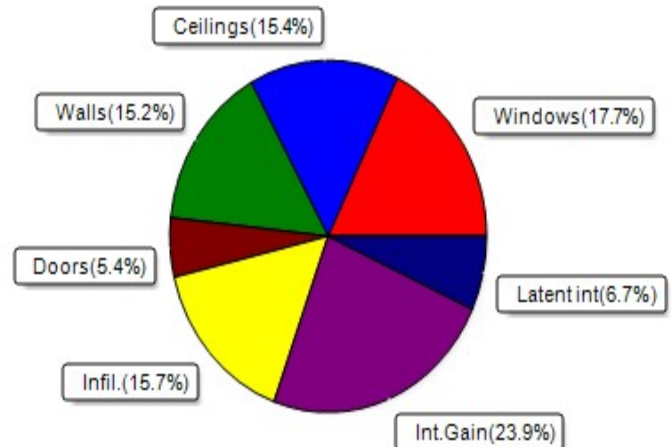
Load component	Load
Window total 378 sqft	3931 Btuh
Wall total 1576 sqft	7075 Btuh
Door total 116 sqft	2134 Btuh
Ceiling total 3250 sqft	6109 Btuh
Floor total 3250 sqft	10856 Btuh
Infiltration 112 cfm	4919 Btuh
Duct loss	0 Btuh
Subtotal	35025 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	35025 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3250 sqft)

Load component	Load
Window total 378 sqft	5274 Btuh
Wall total 1576 sqft	4510 Btuh
Door total 116 sqft	1601 Btuh
Ceiling total 3250 sqft	4582 Btuh
Floor total	0 Btuh
Infiltration 84 cfm	1752 Btuh
Internal gain	7100 Btuh
Duct gain	0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	24819 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	2908 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	2000 Btuh
Total latent gain	4908 Btuh
TOTAL HEAT GAIN	29727 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 2-27-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Paschall Residence

, FL

2/27/2025

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.	9.0	0.0	9.0	9	9	82	Btuh		
2	2 NFRC	0.20, 0.26	No	No	N		1.5ft.	1.3ft.	108.0	0.0	108.0	9	9	988	Btuh		
3	2 NFRC	0.20, 0.26	No	No	E		1.5ft.	1.3ft.	18.0	0.0	18.0	9	24	436	Btuh		
4	2 NFRC	0.20, 0.26	No	No	S		1.5ft.	1.3ft.	144.0	144.0	0.0	9	11	1317	Btuh		
5	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	1.3ft.	6.0	0.0	6.0	9	24	145	Btuh		
6	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	1.3ft.	3.0	0.0	3.0	9	24	73	Btuh		
7	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	1.3ft.	90.0	0.0	90.0	9	24	2180	Btuh		
	Excursion													52	Btuh		
	Window Total								378 (sqft)					5274 Btuh			
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load		
									Cav/Sheath								
1	Frame - Steel - Ext						0.11		13.0/0.0		285.0		2.9		816 Btuh		
2	Frame - Steel - Ext						0.11		13.0/0.0		567.0		2.9		1623 Btuh		
3	Frame - Steel - Ext						0.11		13.0/0.0		258.0		2.9		738 Btuh		
4	Frame - Steel - Ext						0.11		13.0/0.0		466.0		2.9		1334 Btuh		
	Wall Total										1576 (sqft)				4510 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 - Exterior										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	SnglAsmb no airsp/DarkMetal						0.047		0.0/21.0		3250.0		1.41		4582 Btuh		
	Ceiling Total										3250 (sqft)				4582 Btuh		
Floors	Type								R-Value		Size		HTM		Load		
1	Slab On Grade								0.0		3250 (ft-perimeter)		0.0		0 Btuh		
	Floor Total										3250.0 (sqft)				0 Btuh		
	Envelope Subtotal:													15967 Btuh			
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural						0.17		29250		1		84.1		1752 Btuh		
Internal gain							Occupants		Btuh/occupant				Appliance		Load		
							10		X 230		+		4800		7100 Btuh		
	Sensible Envelope Load:													24819 Btuh			
Duct load	Extremelysealed, Supply(R6.0-Cond),Return(R6.0-Cond)													(DGM of 0.000)		0 Btuh	
	Sensible Load All Zones													24819 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Paschall Residence

, FL

2/27/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	24819 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	24819 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	24819 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2908 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4908 Btuh
	TOTAL GAIN	29727 Btuh

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(1/2))
(Ornt - compass orientation)



Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

, FL

Project Title:
Paschall Residence
Building Type: User

2/27/2025

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	9.0		10.4	94 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	108.0		10.4	1123 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	18.0		10.4	187 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	144.0		10.4	1498 Btuh
5	2, NFRC 0.20	Vinyl	0.26	W	6.0		10.4	62 Btuh
6	2, NFRC 0.20	Vinyl	0.26	W	3.0		10.4	31 Btuh
7	2, NFRC 0.20	Vinyl	0.26	W	90.0		10.4	936 Btuh
	Window Total				378.0(sqft)			3931 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Steel	- Ext	(0.112)	13.0/0.0	285		4.49	1279 Btuh
2	Frame - Steel	- Ext	(0.112)	13.0/0.0	567		4.49	2545 Btuh
3	Frame - Steel	- Ext	(0.112)	13.0/0.0	258		4.49	1158 Btuh
4	Frame - Steel	- Ext	(0.112)	13.0/0.0	466		4.49	2092 Btuh
	Wall Total				1576(sqft)			7075 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 - Exterior, 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	Single as/D/Metal		(0.047)	0.0/21.0	3250		1.9	6109 Btuh
	Ceiling Total				3250(sqft)			6109Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	230.0 ft(perim.)		47.2	10856 Btuh
	Floor Total				3250 sqft			10856 Btuh
	Envelope Subtotal:							30106 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.23	29250	1.00	112.1		4919 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh
All Zones	Sensible Subtotal All Zones							35025 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Paschall Residence
Building Type: User

2/27/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	35025 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	35025 Btuh

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