

Residential System Sizing Calculation

Summary

Project Title:
Raymont Residence

, FL

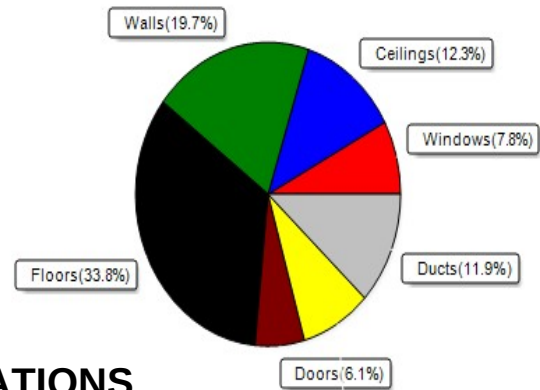
2/11/2025

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	36335 Btuh	Total cooling load calculation	26572 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	132.1 48000	Sensible (SHR = 0.75)	156.8 36000
Heat Pump + Auxiliary(0.0kW)	132.1 48000	Latent	332.3 12000
		Total (Electric Heat Pump)	180.6 48000

WINTER CALCULATIONS

Winter Heating Load (for 2370 sqft)

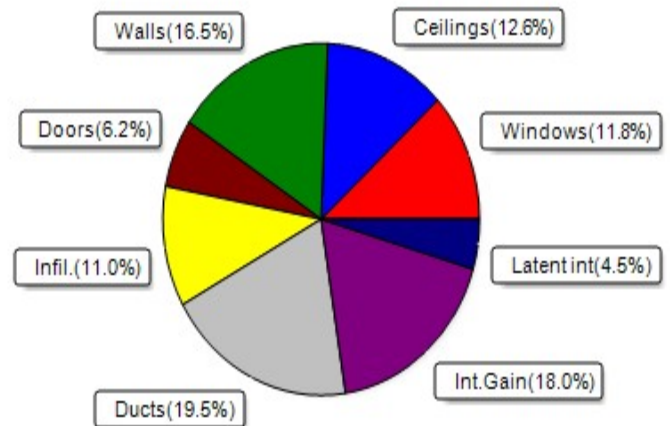
Load component	Load
Window total 273 sqft	2834 Btuh
Wall total 2018 sqft	7163 Btuh
Door total 120 sqft	2208 Btuh
Ceiling total 2370 sqft	4455 Btuh
Floor total 2370 sqft	12272 Btuh
Infiltration 70 cfm	3075 Btuh
Duct loss	4328 Btuh
Subtotal	36335 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	36335 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2370 sqft)

Load component	Load
Window total 273 sqft	3126 Btuh
Wall total 2018 sqft	4374 Btuh
Door total 120 sqft	1656 Btuh
Ceiling total 2370 sqft	3341 Btuh
Floor total	0 Btuh
Infiltration 53 cfm	1095 Btuh
Internal gain	4780 Btuh
Duct gain	4589 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	22961 Btuh
Latent gain(ducts)	594 Btuh
Latent gain(infiltration)	1818 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3611 Btuh
TOTAL HEAT GAIN	26572 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 2-11-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Raymont Residence

, FL

2/11/2025

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	12.5	0.0	12.5	9	9	114 Btuh	
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	30.0	0.0	30.0	9	9	274 Btuh	
3	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	30.0	0.0	30.0	9	9	274 Btuh	
4	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	60.0	0.0	60.0	9	9	549 Btuh	
5	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	30.0	0.0	30.0	9	9	274 Btuh	
6	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	6.0	0.0	6.0	9	24	145 Btuh	
7	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	18.0	18.0	0.0	9	11	165 Btuh	
8	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	25.0	25.0	0.0	9	11	229 Btuh	
9	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	25.0	25.0	0.0	9	11	229 Btuh	
10	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	12.0	0.0	12.0	9	24	291 Btuh	
11	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	20.0	0.0	20.0	9	24	484 Btuh	
12	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	4.0	0.0	4.0	9	24	97 Btuh	
Window Total								273 (sqft)					3126 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)			HTM		Load			
					Cav/Sheath									
1	Frame - Wood - Ext		0.09		13.0/0.0			182.5		2.3		413 Btuh		
2	Frame - Wood - Ext		0.09		13.0/0.0			87.8		2.3		199 Btuh		
3	Frame - Wood - Ext		0.09		13.0/0.0			90.0		2.3		204 Btuh		
4	Frame - Wood - Ext		0.09		13.0/0.0			32.0		2.3		72 Btuh		
5	Frame - Wood - Ext		0.09		13.0/0.0			158.3		2.3		358 Btuh		
6	Frame - Wood - Ext		0.09		13.0/0.0			72.0		2.3		163 Btuh		
7	Frame - Wood - Ext		0.09		13.0/0.0			87.0		2.3		197 Btuh		
8	Frame - Wood - Ext		0.09		13.0/0.0			354.0		2.3		801 Btuh		
9	Frame - Wood - Ext		0.09		13.0/0.0			99.0		2.3		224 Btuh		
10	Frame - Wood - Ext		0.09		13.0/0.0			18.0		2.3		41 Btuh		
11	Frame - Wood - Ext		0.09		13.0/0.0			93.3		2.3		211 Btuh		
12	Frame - Wood - Ext		0.09		13.0/0.0			20.0		2.3		45 Btuh		
13	Frame - Wood - Ext		0.09		13.0/0.0			147.0		2.3		333 Btuh		
14	Frame - Wood - Adj		0.09		13.0/0.0			333.8		1.7		563 Btuh		
15	Frame - Wood - Ext		0.09		13.0/0.0			243.0		2.3		550 Btuh		
Wall Total								2018 (sqft)					4374 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						24.0		13.8		331 Btuh			
Door Total								120 (sqft)					1656 Btuh	
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)			HTM		Load			
1	SnglAsmb no airsp/DarkShingle		0.047		0.0/21.0			2370.0		1.41		3341 Btuh		
Ceiling Total								2370 (sqft)					3341 Btuh	
Floors	Type				R-Value			Size			HTM		Load	
1	Slab On Grade						0.0			2370 (ft-perimeter)		0.0	0 Btuh	
Floor Total								2370.0 (sqft)					0 Btuh	
	Envelope Subtotal:											12497 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Raymont Residence

, FL

2/11/2025

Infiltration	Type Natural	Average ACH 0.15	Volume(cuft) 21330	Wall Ratio 1	CFM= 52.6	Load 1095 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	3400	Load 4780 Btuh
	Sensible Envelope Load:					18372 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.250)					4589 Btuh
	Sensible Load All Zones					22961 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Raymont Residence

, FL

2/11/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18372 Btuh
	Sensible Duct Load	4589 Btuh
	Total Sensible Zone Loads	22961 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	22961 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1818 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	594 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3611 Btuh
	TOTAL GAIN	26572 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(½))
(Ornt - compass orientation)



Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Raymont Residence
Building Type: User

, FL

2/11/2025

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	12.5		10.4	130 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	60.0		10.4	624 Btuh
5	2, NFRC 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	6.0		10.4	62 Btuh
7	2, NFRC 0.20	Vinyl	0.26	S	18.0		10.4	187 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	25.0		10.4	260 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	12.0		10.4	125 Btuh
11	2, NFRC 0.20	Vinyl	0.26	W	20.0		10.4	208 Btuh
12	2, NFRC 0.20	Vinyl	0.26	W	4.0		10.4	42 Btuh
	Window Total					272.5(sqft)		2834 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	183		3.55	648 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	88		3.55	312 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	320 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	114 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	158		3.55	562 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	309 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	354		3.55	1257 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	331 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	20		3.55	71 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	147		3.55	522 Btuh
14	Frame - Wood	- Adj	(0.089)	13.0/0.0	334		3.55	1185 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	243		3.55	863 Btuh
	Wall Total					2018(sqft)		7163 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)		24		18.4	442 Btuh
	Door Total					120(sqft)		2208Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Shing		(0.047)	0.0/21.0	2370		1.9	4455 Btuh
	Ceiling Total					2370(sqft)		4455Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	260.0 ft(perim.)		47.2	12272 Btuh
	Floor Total					2370 sqft		12272 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Raymont Residence
Building Type: User

2/11/2025

	Envelope Subtotal:						28932 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.20	21330	1.00	70.1	3075 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.135)	4328 Btuh
All Zones	Sensible Subtotal All Zones						36335 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss						36335 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)						0 Btuh
	Total Heat Loss						36335 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