

Residential System Sizing Calculation

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Summary

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res

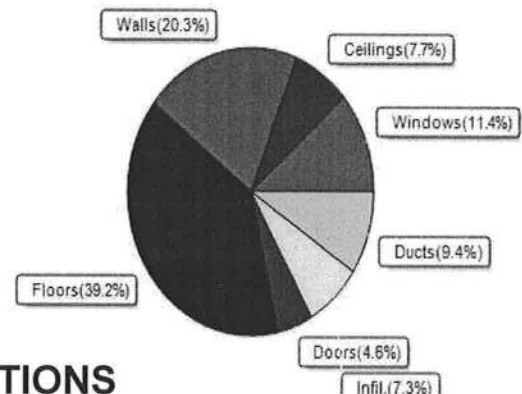
2024-10-07

Location for weather data: Gainesville, FL - Defaults: Latitude(30) Altitude(164 ft.) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(51gr.)					
Winter design temperature(MJ8 99%/Cu)	30	F	Summer design temperature(MJ8 99%/Cu)	100	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	40	F	Summer temperature difference	25	F
Total heating load calculation		29825 Btuh	Total cooling load calculation		22450 Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	107.3	32000	Sensible (SHR = 0.75)	125.9	24000
Heat Pump + Auxiliary(0.0kW)	107.3	32000	Latent	236.2	8000
			Total (Electric Heat Pump)	142.5	32000

WINTER CALCULATIONS

Winter Heating Load (for 1820 sqft)

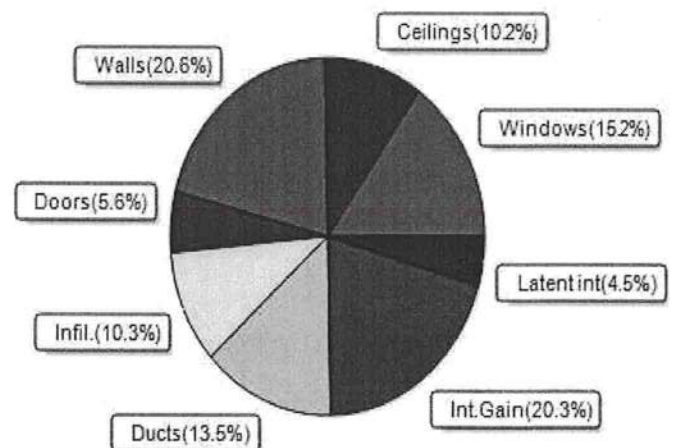
Load component			Load	
Window total	244	sqft	3410	Btuh
Wall total	1709	sqft	6069	Btuh
Door total	87	sqft	1387	Btuh
Ceiling total	1899	sqft	2288	Btuh
Floor total	1820	sqft	11706	Btuh
Infiltration	50	cfm	2175	Btuh
Duct loss			2790	Btuh
Subtotal			29825	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			29825	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1820 sqft)

Load component			Load	
Window total	244	sqft	3409	Btuh
Wall total	1709	sqft	4619	Btuh
Door total	87	sqft	1248	Btuh
Ceiling total	1899	sqft	2288	Btuh
Floor total			0	Btuh
Infiltration	37	cfm	1020	Btuh
Internal gain			4550	Btuh
Duct gain			1929	Btuh
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			19063	Btuh
Latent gain(ducts)			1101	Btuh
Latent gain(infiltration)			1286	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1000	Btuh
Total latent gain			3387	Btuh
TOTAL HEAT GAIN			22450	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2024-10-07**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res
Building Type: User

2024-10-07

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (MJ8 99%/Cu)
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 0.25	Metal	0.35	N	15.0		14.0	210 Btuh
2	2, NFRC 0.25	Metal	0.35	N	60.0		14.0	840 Btuh
3	2, NFRC 0.25	Metal	0.35	N	13.3		14.0	187 Btuh
4	2, NFRC 0.25	Metal	0.35	N	45.0		14.0	630 Btuh
5	2, NFRC 0.25	Metal	0.35	N	8.0		14.0	112 Btuh
6	2, NFRC 0.25	Metal	0.35	S	20.0		14.0	280 Btuh
7	2, NFRC 0.25	Metal	0.35	S	30.0		14.0	420 Btuh
8	2, NFRC 0.25	Metal	0.35	S	22.2		14.0	311 Btuh
9	2, NFRC 0.25	Metal	0.35	S	15.0		14.0	210 Btuh
10	2, NFRC 0.25	Metal	0.35	S	15.0		14.0	210 Btuh
Window Total					243.6(sqft)			3410 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	83		3.55	295 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	55		3.55	196 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	148		3.55	525 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	131		3.55	464 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	136		3.55	484 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	231		3.55	819 Btuh
7	Frame - Wood	- Adj	(0.089)	13.0/0.0	167		3.55	592 Btuh
8	Frame - Wood	- Adj	(0.089)	13.0/0.0	111		3.55	393 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	222 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	111		3.55	396 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	53		3.55	189 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	83		3.55	295 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	266		3.55	944 Btuh
Wall Total					1709(sqft)			6069 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		53		16.0	853 Btuh
2	Insulated - Garage, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Exterior, n		(0.400)		13		16.0	213 Btuh
Door Total					87(sqft)			1387Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.241)	0.0/22.0	1820		1.2	2193 Btuh
2	Knee wall/D/Shing		(0.241)	0.0/22.0	79		1.2	95 Btuh
Ceiling Total					1899(sqft)			2288Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	248.0 ft(perim.)		47.2	11706 Btuh
Floor Total					1820 sqft			11706 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res
Building Type: User

2024-10-07

	Envelope Subtotal:					24859 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.19	Volume(cuft) 15470	Wall Ratio 1.00	CFM= 49.7	2175 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.103)					2790 Btuh
All Zones	Sensible Subtotal All Zones					29825 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss					29825 Btuh 0 Btuh 29825 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32000 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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res

2024-10-07

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

Temperature Difference: 25.0F(MJ8 99%/Cu)
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	0.25, 0.35	No	No	N	1.5ft	0.5ft	15.0	0.0	15.0	14	14	210	Btuh
2	2 NFRC	0.25, 0.35	No	No	N	10.5f	1.0ft	60.0	0.0	60.0	14	14	840	Btuh
3	2 NFRC	0.25, 0.35	No	No	N	10.5f	1.0ft	13.3	0.0	13.3	14	14	187	Btuh
4	2 NFRC	0.25, 0.35	No	No	N	1.0ft	0.5ft	45.0	0.0	45.0	14	14	630	Btuh
5	2 NFRC	0.25, 0.35	No	No	N	1.5ft	0.5ft	8.0	0.0	8.0	14	14	112	Btuh
6	2 NFRC	0.25, 0.35	No	No	S	1.5ft	1.5ft	20.0	20.0	0.0	14	16	280	Btuh
7	2 NFRC	0.25, 0.35	No	No	S	1.5ft	1.5ft	30.0	30.0	0.0	14	16	420	Btuh
8	2 NFRC	0.25, 0.35	No	No	S	8.2ft	1.3ft	22.2	22.2	0.0	14	16	311	Btuh
9	2 NFRC	0.25, 0.35	No	No	S	8.2ft	1.3ft	15.0	15.0	0.0	14	16	210	Btuh
10	2 NFRC	0.25, 0.35	No	No	S	1.5ft	1.5ft	15.0	15.0	0.0	14	16	210	Btuh
	Window Total							244 (sqft)					3409 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
					Cav/Sheath									
1	Frame - Wood - Ext		0.09		13.0/0.0		83.0		2.8		232	Btuh		
2	Frame - Wood - Ext		0.09		13.0/0.0		55.3		2.8		155	Btuh		
3	Frame - Wood - Ext		0.09		13.0/0.0		147.8		2.8		413	Btuh		
4	Frame - Wood - Ext		0.09		13.0/0.0		130.7		2.8		365	Btuh		
5	Frame - Wood - Ext		0.09		13.0/0.0		136.3		2.8		381	Btuh		
6	Frame - Wood - Ext		0.09		13.0/0.0		230.7		2.8		645	Btuh		
7	Frame - Wood - Adj		0.09		13.0/0.0		166.7		2.2		370	Btuh		
8	Frame - Wood - Adj		0.09		13.0/0.0		110.7		2.2		246	Btuh		
9	Frame - Wood - Ext		0.09		13.0/0.0		62.5		2.8		175	Btuh		
10	Frame - Wood - Ext		0.09		13.0/0.0		72.0		2.8		201	Btuh		
11	Frame - Wood - Ext		0.09		13.0/0.0		111.4		2.8		312	Btuh		
12	Frame - Wood - Ext		0.09		13.0/0.0		53.3		2.8		149	Btuh		
13	Frame - Wood - Ext		0.09		13.0/0.0		83.0		2.8		232	Btuh		
14	Frame - Wood - Ext		0.09		13.0/0.0		266.0		2.8		744	Btuh		
	Wall Total							1709 (sqft)					4619 Btuh	
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Exterior		53.3		14.4		768	Btuh						
2	Insulated - Garage		20.0		14.4		288	Btuh						
3	Insulated - Exterior		13.3		14.4		192	Btuh						
	Door Total						87 (sqft)				1248 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Unvented Attic/DarkShingle		0.241		0.0/22.0		1820.0		1.20		2193	Btuh		
2	Knee wall to attic/DarkShingle		0.241		0.0/22.0		79.0		1.20		95	Btuh		
	Ceiling Total						1899 (sqft)				2288 Btuh			
Floors	Type	R-Value		Size		HTM		Load						
1	Slab On Grade		0.0		1820 (ft-perimeter)		0.0		0		Btuh			
	Floor Total						1820.0 (sqft)				0 Btuh			
	Envelope Subtotal:											11565 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res

Climate: FL_GAINESVILLE_REGIONAL_A

2024-10-07

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 15470	Wall Ratio 1	CFM= 37.3	Load 1020 Btuh
Internal gain		Occupants 5	Btuh/occupant X 230	Appliance +	3400	Load 4550 Btuh
					Sensible Envelope Load:	17134 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.113)		1929 Btuh
					Sensible Load All Zones	19063 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Perri Res
119 SW Hawk Lane
Fort White, FL

Project Title:
240961 Perri Res

Climate: FL_GAINESVILLE_REGIONAL_A

2024-10-07

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	17134 Btuh
	Sensible Duct Load	1929 Btuh
	Total Sensible Zone Loads	19063 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19063 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1286 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1101 Btuh
	Latent occupant gain (5.0 people @ 200 Btuh per person)	1000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3387 Btuh
	TOTAL GAIN	22450 Btuh

EQUIPMENT

1. Central Unit	#	32000 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