



Residential System Sizing Calculation

Summary

Project Title:
Parsons Residence

, FL

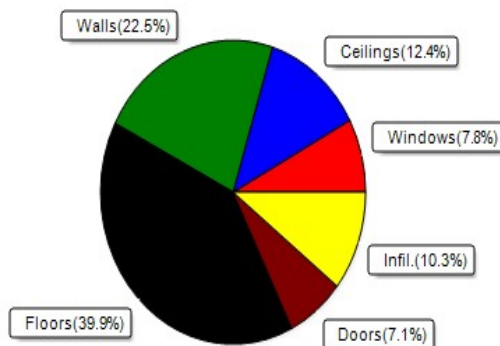
10/4/2024

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	23789 Btuh	Total cooling load calculation	17042 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	176.6 42000	Sensible (SHR = 0.75)	218.9 31500
Heat Pump + Auxiliary(0.0kW)	176.6 42000	Latent	395.8 10500
		Total (Electric Heat Pump)	246.4 42000

WINTER CALCULATIONS

Winter Heating Load (for 2169 sqft)

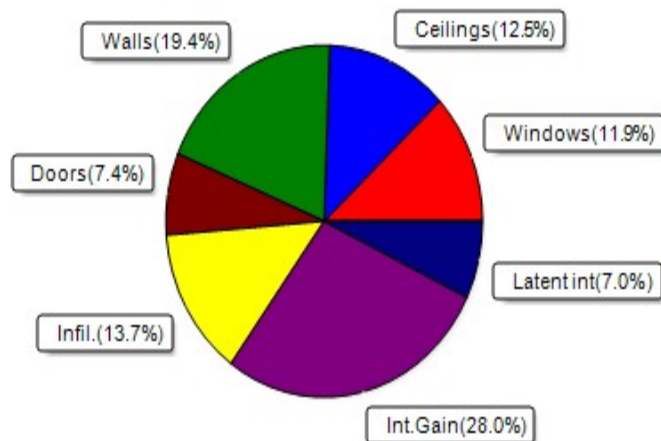
Load component	Load
Window total 179 sqft	1856 Btuh
Wall total 1506 sqft	5345 Btuh
Door total 92 sqft	1693 Btuh
Ceiling total 2169 sqft	2950 Btuh
Floor total 2169 sqft	9487 Btuh
Infiltration 56 cfm	2458 Btuh
Duct loss	0 Btuh
Subtotal	23789 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	23789 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2169 sqft)

Load component	Load
Window total 179 sqft	2026 Btuh
Wall total 1506 sqft	3300 Btuh
Door total 92 sqft	1270 Btuh
Ceiling total 2169 sqft	2139 Btuh
Floor total	0 Btuh
Infiltration 42 cfm	876 Btuh
Internal gain	4780 Btuh
Duct gain	0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	14390 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	1453 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2653 Btuh
TOTAL HEAT GAIN	17042 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

10-4-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Parsons Residence

, FL

10/4/2024

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	13.5	0.0	13.5	9	9	123	Btuh		
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	36.0	0.0	36.0	9	9	329	Btuh		
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	3.0	0.0	3.0	9	24	73	Btuh		
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	108.0	108.0	0.0	9	11	988	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	12.0	0.0	12.0	9	24	291	Btuh		
	Excursion												77	Btuh		
	Window Total							179 (sqft)					2026 Btuh			
Walls	Type	U-Value			R-Value		Area(sqft)			HTM		Load				
					Cav/Sheath											
1	Frame - Wood - Ext				0.09	13.0/0.0			259.5		2.3		587	Btuh		
2	Frame - Wood - Ext				0.09	13.0/0.0			108.0		2.3		244	Btuh		
3	Frame - Wood - Ext				0.09	13.0/0.0			42.0		2.3		95	Btuh		
4	Frame - Wood - Ext				0.09	13.0/0.0			150.0		2.3		340	Btuh		
5	Frame - Wood - Ext				0.09	13.0/0.0			42.0		2.3		95	Btuh		
6	Frame - Wood - Ext				0.09	13.0/0.0			63.0		2.3		143	Btuh		
7	Frame - Wood - Ext				0.09	13.0/0.0			384.0		2.3		869	Btuh		
8	Frame - Wood - Ext				0.09	13.0/0.0			270.0		2.3		611	Btuh		
9	Frame - Wood - Adj				0.09	13.0/0.0			187.0		1.7		315	Btuh		
	Wall Total							1506 (sqft)					3300 Btuh			
Doors	Type	U-Value			R-Value		Area (sqft)			HTM		Load				
1	Insulated - Exterior								24.0		13.8		331	Btuh		
2	Insulated - Exterior								48.0		13.8		662	Btuh		
3	Insulated - Garage								20.0		13.8		276	Btuh		
	Door Total							92 (sqft)					1270 Btuh			
Ceilings	Type/Color/Surface	U-Value			R-Value		Area(sqft)			HTM		Load				
1	SnglAsmb no airsp/DarkMetal				0.034	30.0/0.0			2169.0		0.99		2139	Btuh		
	Ceiling Total							2169 (sqft)					2139 Btuh			
Floors	Type	U-Value			R-Value		Size			HTM		Load				
1	Slab On Grade					0.0			2169 (ft-perimeter)		0.0		0	Btuh		
	Floor Total							2169.0 (sqft)					0 Btuh			
	Envelope Subtotal:												8734 Btuh			
Infiltration	Type	Average ACH			Volume(cuft)		Wall Ratio		CFM=		Load					
	Natural				0.13		19521	1	42.0		876	Btuh				
Internal gain	Occupants			Btuh/occupant		Appliance		Load								
	6			X	230	+	3400	4780 Btuh								
	Sensible Envelope Load:												14390 Btuh			
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi)												(DGM of 0.000)		0 Btuh	
	Sensible Load All Zones												14390 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Parsons Residence

, FL

10/4/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14390 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	14390 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14390 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1453 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2653 Btuh
	TOTAL GAIN	17042 Btuh

EQUIPMENT

1. Central Unit	#	42000 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:
Parsons Residence
Building Type: User

, FL

10/4/2024

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	13.5		10.4	140 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	3.0		10.4	31 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	108.0		10.4	1123 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	12.0		10.4	125 Btuh
	Window Total				178.5(sqft)			1856 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	260		3.55	921 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	383 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	42		3.55	149 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	150		3.55	533 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	42		3.55	149 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	384		3.55	1363 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	270		3.55	959 Btuh
9	Frame - Wood	- Adj	(0.089)	13.0/0.0	187		3.55	664 Btuh
	Wall Total				1506(sqft)			5345 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		24		18.4	442 Btuh
2	Insulated - Exterior,	n	(0.460)		48		18.4	883 Btuh
3	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
	Door Total				92(sqft)			1693Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Metal		(0.034)	30.0/0.0	2169		1.4	2950 Btuh
	Ceiling Total				2169(sqft)			2950Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	201.0 ft(perim.)		47.2	9487 Btuh
	Floor Total				2169 sqft			9487 Btuh
	Envelope Subtotal:							21331 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	19521	1.00	56.0		2458 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Parsons Residence
Building Type: User

10/4/2024

All Zones	Sensible Subtotal All Zones	23789 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	23789 Btuh 0 Btuh 23789 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	42000 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