Residential System Sizing Calculation

Summary

Joseph & Cheryl Metzger
329 SW William Young Ln
Lake City, FL 32024

Project Title:
Metzger Residence

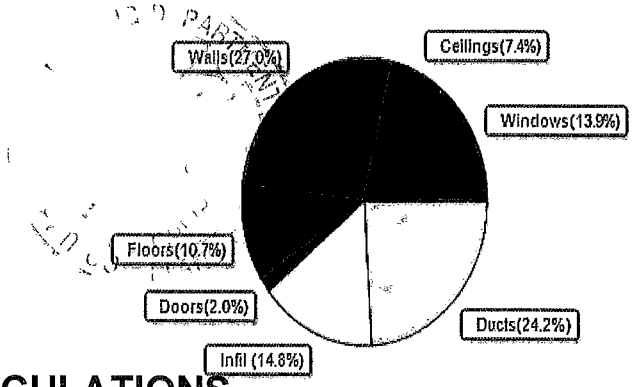
7/23/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M) Humidity data. Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)					
Winter design temperature(MJ8 99%/Cu)	33	F	Summer design temperature(MJ8 99%/Cu)	99	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	24	F
Total heating load calculation	**38248**	**Btuh**	**Total cooling load calculation**	**48884**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	153 0	58500	Sensible (SHR = 0.70)	100.7	40950
Heat Pump + Auxiliary(0 0kW)	153 0	58500	Latent	213.6	17550
			Total (Electric Heat Pump)	119.7	58500

WINTER CALCULATIONS

Winter Heating Load (for 3216 sqft)

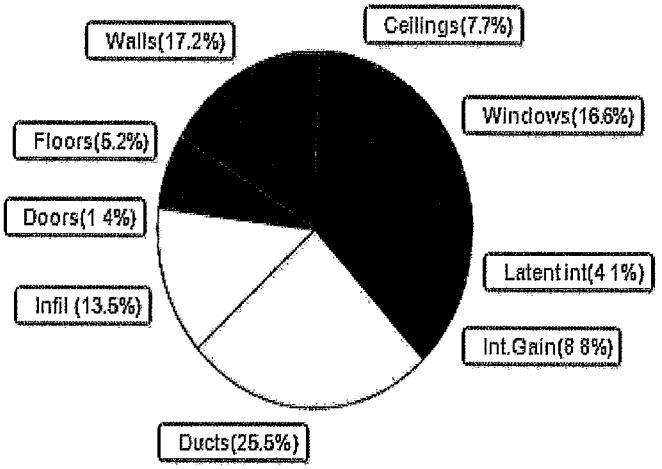
Load component			Load	
Window total	399	sqft	5315	Btuh
Wall total	3150	sqft	10344	Btuh
Door total	44	sqft	749	Btuh
Ceiling total	3010	sqft	2827	Btuh
Floor total	See detail report		4104	Btuh
Infiltration	140	cfm	5658	Btuh
Duct loss			9252	Btuh
Subtotal			**38248**	**Btuh**
Ventilation	Ex:0 cfm, Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**38248**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 3216 sqft)

Load component			Load	
Window total	399	sqft	8106	Btuh
Wall total	3150	sqft	8404	Btuh
Door total	44	sqft	708	Btuh
Ceiling total	3010	sqft	3744	Btuh
Floor total			2554	Btuh
Infiltration	105	cfm	2753	Btuh
Internal gain			4300	Btuh
Duct gain			10101	Btuh
Sens.Ventilation	Ex:0 cfm, Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**40669**	**Btuh**
Latent gain(ducts)			2387	Btuh
Latent gain(infiltration)			3829	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2000	Btuh
Total latent gain			**8216**	**Btuh**
TOTAL HEAT GAIN			**48884**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 7 / 23 / 2025

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Joseph & Cheryl Metzger
329 SW William Young Ln
Lake City, FL 32024

Project Title:
Metzger Residence
Building Type: User

7/23/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37 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	Vinyl	0.36	S	18.0	13.3	240 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	36.0	13.3	480 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	36.0	13.3	480 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	36.0	13.3	480 Btuh
5	2, NFRC 0 25	Vinyl	0.36	S	6.0	13 3	80 Btuh
6	2, NFRC 0 25	Vinyl	0.36	E	9.0	13 3	120 Btuh
7	2, NFRC 0 25	Vinyl	0 36	N	6.0	13.3	80 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	16.0	13.3	213 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	9.0	13.3	120 Btuh
10	2, NFRC 0.25	Metal	0.36	E	64 0	13 3	852 Btuh
11	2, NFRC 0.25	TIM	0.36	N	60.0	13.3	799 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	40.0	13.3	533 Btuh
13	2, NFRC 0.25	Vinyl	0.36	W	14.0	13.3	186 Btuh
14	2, NFRC 0.25	Vinyl	0 36	W	18.0	13.3	240 Btuh
15	2, NFRC 0.25	Vinyl	0.36	S	12.0	13.3	160 Btuh
16	2, NFRC 0.25	Vinyl	0.36	S	4.0	13.3	53 Btuh
17	2, NFRC 0.25	Vinyl	0.36	N	15.0	13.3	200 Btuh
	Window Total				399 0(sqft)		5315 Btuh

Walls	Type	Ornt.	Ueff	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13 0/0 0	126	3.28	414 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	45	3.28	148 Btuh
3	Frame - Wood	- Ext	(0.089)	13 0/0.0	72	3.28	236 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	54	3.28	177 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	156	3.28	512 Btuh
6	Frame - Wood	- Ext	(0.089)	13 0/0.0	54	3.28	177 Btuh
7	Frame - Wood	- Ext	(0 089)	13 0/0.0	90	3.28	296 Btuh
8	Frame - Wood	- Ext	(0.089)	13 0/0.0	45	3.28	148 Btuh
9	Frame - Wood	- Ext	(0.089)	13 0/0 0	84	3.28	276 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	164	3 28	537 Btuh
11	Frame - Wood	- Adj	(0.089)	13 0/0 0	213	3.28	700 Btuh
12	Frame - Wood	- Ext	(0 089)	13.0/0.0	177	3.28	580 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	75	3 28	246 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	81	3.28	266 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	176	3.28	578 Btuh
16	Frame - Wood	- Ext	(0.089)	13 0/0.0	73	3.28	239 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0 0	100	3.28	328 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	100	3.28	328 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	253	3.28	831 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	148	3.28	486 Btuh
21	Frame - Wood	- Ext	(0.089)	13.0/0.0	344	3.28	1130 Btuh
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	97	3.28	319 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	136	3.28	447 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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Project Title:
Metzger Residence
Building Type: User

7/23/2025

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
24	Frame - Wood	- Ext	(0.089)	13.0/0.0	144	3.28	473 Btuh
25	Frame - Wood	- Ext	(0 089)	13.0/0.0	144	3.28	473 Btuh
	Wall Total				3150(sqft)		10344 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		24	17.0	408 Btuh
2	Insulated - Exterior,	n	(0.460)		20	17 0	340 Btuh
	Door Total				44(sqft)		749Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	1955	0.94	1836 Btuh
2	Flat ceil/D/Shing		(0 025)	38 0/0.0	1055	0.94	991 Btuh
	Ceiling Total				3010(sqft)		2827Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Stem/Crawlsp(Carpet)(v)		(0.049)	19.0/0.0	2257.0 sqft	1.4	3214 Btuh
2	Raised Wood - Adj		(0.050)	19.0	479.5 sqft	1.9	890 Btuh
3	Interior		(0 050)	19.0	479.5 sqft	0.0	0 Btuh
	Floor Total				3216 sqft		4104 Btuh
					Envelope Subtotal.		23338 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0 30	27985	1.00	139.7	5658 Btuh
Duct load	Average sealed, R6 0, Supply(Att), Return(Att)					(DLM of 0.319)	9252 Btuh
All Zones				**Sensible Subtotal All Zones**			**38248 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss		38248 Btuh
	Ventilation Sens. Heat Loss	(Ex:0 cfm, Sup:0 cfm)	0 Btuh
	Total Heat Loss		38248 Btuh

EQUIPMENT

1. Electric Heat Pump	#	58500 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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Lake City, FL 32024

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7/23/2025

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

Joseph & Cheryl Metzger
329 SW William Young Ln
Lake City, FL 32024

Project Title:
Metzger Residence

7/23/2025

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(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 36		No	No	S	1 5ft	1 0ft	18 0	18 0	0 0	14	16	250	Btuh
2	2 NFRC	0 25, 0 36		No	No	S	1 0ft	3 0ft	36 0	16 1	19 9	14	16	539	Btuh
3	2 NFRC	0 25, 0 36		No	No	S	8 5ft	1 0ft	36 0	36 0	0 0	14	16	500	Btuh
4	2 NFRC	0 25, 0 36		No	No	S	1 0ft	3 0ft	36 0	16 1	19 9	14	16	539	Btuh
5	2 NFRC	0 25, 0 36		No	No	S	1 5ft	1 0ft	6 0	6 0	0 0	14	16	83	Btuh
6	2 NFRC	0 25, 0 36		No	No	E	1 5ft	1 0ft	9 0	0 7	8 3	14	33	281	Btuh
7	2 NFRC	0 25, 0 36		No	No	N	1 5ft	1 0ft	6 0	0 0	6 0	14	14	83	Btuh
8	2 NFRC	0 25, 0 36		No	No	N	10 5f	1 0ft	16 0	0 0	16.0	14	14	222	Btuh
9	2 NFRC	0 25, 0 36		No	No	N	10 5f	1 0ft	9 0	0 0	9 0	14	14	125	Btuh
10	2 NFRC	0 25, 0 36		No	No	E	2 5ft	1 0ft	64 0	8 6	55 4	14	33	1933	Btuh
11	2 NFRC	0 25, 0 36		No	No	N	1 5ft	1 0ft	60 0	0 0	60 0	14	14	834	Btuh
12	2 NFRC	0 25, 0 36		No	No	W	1 5ft	1 0ft	40 0	1 5	38 5	14	33	1282	Btuh
13	2 NFRC	0 25, 0 36		No	No	W	1 5ft	1 0ft	14 0	1 7	12 3	14	33	426	Btuh
14	2 NFRC	0 25, 0 36		No	No	W	1 5ft	1 0ft	18 0	0 7	17 3	14	33	576	Btuh
15	2 NFRC	0 25, 0 36		No	No	S	1 5ft	1 0ft	12 0	12 0	0 0	14	16	167	Btuh
16	2 NFRC	0 25, 0 36		No	No	S	1 0ft	3 0ft	4 0	4 0	0 0	14	16	56	Btuh
17	2 NFRC	0 25, 0 36		No	No	N	1 0ft	2 0ft	15 0	0 0	15 0	14	14	208	Btuh
	Window Total								399 (sqft)					8106	Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load	
1	Frame - Wood - Ext	0 09	13 0/0 0	126 0	2 7	341	Btuh
2	Frame - Wood - Ext	0 09	13 0/0 0	45 0	2 7	122	Btuh
3	Frame - Wood - Ext	0 09	13 0/0 0	72 0	2 7	195	Btuh
4	Frame - Wood - Ext	0 09	13 0/0 0	54 0	2 7	146	Btuh
5	Frame - Wood - Ext	0 09	13 0/0 0	156 0	2 7	422	Btuh
6	Frame - Wood - Ext	0 09	13 0/0 0	54 0	2 7	146	Btuh
7	Frame - Wood - Ext	0 09	13 0/0 0	90 0	2 7	244	Btuh
8	Frame - Wood - Ext	0 09	13 0/0 0	45 0	2 7	122	Btuh
9	Frame - Wood - Ext	0 09	13 0/0 0	84 0	2 7	227	Btuh
10	Frame - Wood - Ext	0 09	13 0/0 0	163 5	2 7	443	Btuh
11	Frame - Wood - Adj	0 09	13 0/0 0	213 0	2 1	454	Btuh
12	Frame - Wood - Ext	0 09	13 0/0 0	176 5	2 7	478	Btuh
13	Frame - Wood - Ext	0 09	13 0/0 0	75 0	2 7	203	Btuh
14	Frame - Wood - Ext	0 09	13 0/0 0	81 0	2 7	219	Btuh
15	Frame - Wood - Ext	0 09	13 0/0 0	176 0	2 7	476	Btuh
16	Frame - Wood - Ext	0 09	13 0/0 0	72 7	2 7	197	Btuh
17	Frame - Wood - Ext	0 09	13 0/0 0	100 0	2 7	271	Btuh
18	Frame - Wood - Ext	0 09	13 0/0 0	100 0	2 7	271	Btuh
19	Frame - Wood - Ext	0 09	13 0/0 0	253 0	2 7	685	Btuh
20	Frame - Wood - Ext	0 09	13 0/0 0	148 0	2 7	401	Btuh
21	Frame - Wood - Ext	0 09	13 0/0 0	344 0	2 7	931	Btuh
22	Frame - Wood - Ext	0 09	13 0/0 0	97 0	2 7	263	Btuh
23	Frame - Wood - Ext	0 09	13 0/0 0	136 0	2 7	368	Btuh
24	Frame - Wood - Ext	0 09	13 0/0 0	144 0	2 7	390	Btuh
25	Frame - Wood - Ext	0 09	13 0/0 0	144 0	2 7	390	Btuh
	Wall Total			3150 (sqft)		8404	Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

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329 SW William Young Ln
Lake City, FL 32024

Project Title: Metzger Residence

Climate:FL_GAINESVILLE_REGIONAL_A

7/23/2025

Doors	Type			Area (sqft)	HTM	Load
1	Insulated - Exterior			24 0	16 1	386 Btuh
2	Insulated - Exterior			20 0	16 1	322 Btuh
	Door Total			44 (sqft)		708 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle/RB	0 025	38 0/0 0	1955 3	1 24	2432 Btuh
2	Vented Attic/DarkShingle/RB	0 025	38 0/0 0	1054 9	1 24	1312 Btuh
	Ceiling Total			3010 (sqft)		3744 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Stem/Crawlsp(Carpet)(v)		19 0	2257 (sqft)	0 9	2097 Btuh
2	Raised Wood - Adj		19 0	480 (sqft)	1 0	457 Btuh
3	Interior		19 0	480 (sqft)	0 0	0 Btuh
	Floor Total			3216 0 (sqft)		2554 Btuh
				Envelope Subtotal:		23515 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio		CFM=	Load
	Natural	0.22	27985	1		104.8	2753 Btuh
Internal gain		Occupants	Btuh/occupant			Appliance	Load
		10	X 230	+		2000	4300 Btuh
					Sensible Envelope Load.		30568 Btuh
Duct load	Average sealed,Supply(R6 0-Attic), Return(R6 0-Attic)				(DGM of 0.330)		10101 Btuh
					Sensible Load All Zones		**40669 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Joseph & Cheryl Metzger
329 SW William Young Ln
Lake City, FL 32024

Project Title: Metzger Residence
Climate:FL_GAINESVILLE_REGIONAL_A

7/23/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**30568 Btuh**
	Sensible Duct Load	10101 Btuh
	Total Sensible Zone Loads	**40669 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**40669 Btuh**
	Latent infiltration gain (for 54 gr. humidity difference)	3829 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	2387 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**8216 Btuh**
	TOTAL GAIN	**48884 Btuh**

EQUIPMENT

1 Central Unit	#	58500 Btuh

*Key Window types (Panes - 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