Residential System Sizing Calculation

Summary

Project Title
Mathis Residence

, FL

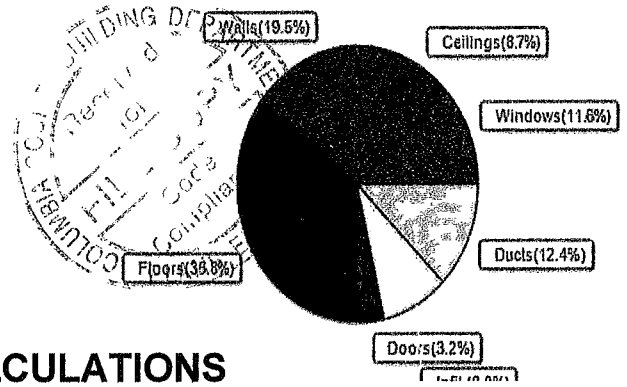
11/1/2025

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	**22833**	**Btuh**	**Total cooling load calculation**	**20116**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	157 7	36000	Sensible (SHR = 0.75)	152.2	27000
Heat Pump + Auxiliary(0 0kW)	157 7	36000	Latent	379 1	9000
			Total (Electric Heat Pump)	179 0	36000

WINTER CALCULATIONS

Winter Heating Load (for 1553 sqft)

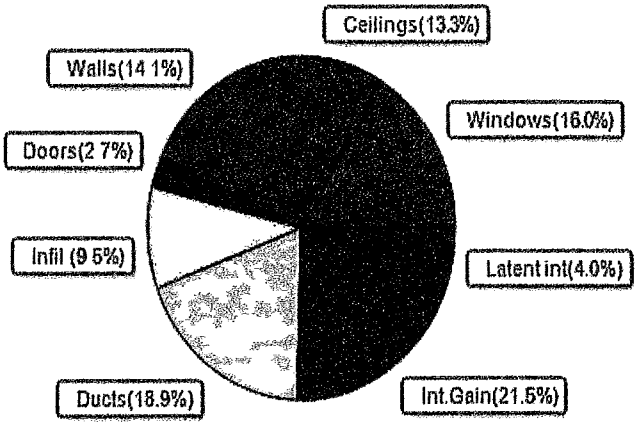
Load component			Load	
Window total	256	sqft	2657	Btuh
Wall total	1253	sqft	4447	Btuh
Door total	40	sqft	736	Btuh
Ceiling total	1553	sqft	1978	Btuh
Floor total	1553	sqft	8166	Btuh
Infiltration	46	cfm	2015	Btuh
Duct loss			2834	Btuh
Subtotal			**22833**	**Btuh**
Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
TOTAL HEAT LOSS			**22833**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1553 sqft)

Load component			Load	
Window total	256	sqft	3219	Btuh
Wall total	1253	sqft	2835	Btuh
Door total	40	sqft	552	Btuh
Ceiling total	1553	sqft	2671	Btuh
Floor total			0	Btuh
Infiltration	34	cfm	718	Btuh
Internal gain			4320	Btuh
Duct gain			3428	Btuh
Sens Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**17742**	**Btuh**
Latent gain(ducts)			383	Btuh
Latent gain(infiltration)			1191	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			800	Btuh
Total latent gain			**2374**	**Btuh**
TOTAL HEAT GAIN			**20116**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY
DATE 11-3-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title
Mathis Residence

, FL

11/1/2025

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* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0 20, 0 26		No	No	N	1 5ft	1 3ft	6 0	0.0	6 0	9	9	55 Btuh
2	2 NFRC	0 20, 0 26		No	No	N	1 5ft	1 3ft	60 0	0 0	60 0	9	9	549 Btuh
3	2 NFRC	0 20, 0.26		No	No	N	1 5ft	1 3ft	8 0	0 0	8 0	9	9	73 Btuh
4	2 NFRC	0 20, 0 26		No	No	N	1 5ft	1 3ft	14 0	0 0	14 0	9	9	128 Btuh
5	2 NFRC	0 20, 0 26		No	No	E	1 5ft	1 3ft	17 5	0 0	17 5	9	24	424 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	E	1 5ft	1 3ft	10 0	0 0	10 0	9	24	242 Btuh
8	2 NFRC	0 20, 0 26		No	No	S	1 5ft	1 3ft	75 0	75 0	0 0	9	11	686 Btuh
9	2 NFRC	0 20, 0 26		No	No	S	1 5ft	1 3ft	4 0	4 0	0 0	9	11	37 Btuh
10	2 NFRC	0 20, 0 26		No	No	W	1 5ft	1 3ft	15 0	0 0	15 0	9	24	363 Btuh
11	2 NFRC	0.20, 0 26		No	No	S	1 5ft	1 3ft	15 0	15 0	0 0	9	11	137 Btuh
12	2 NFRC	0.20, 0 26		No	No	W	1 5ft	1 3ft	10 0	0 0	10 0	9	24	242 Btuh
13	2 NFRC	0 20, 0 26		No	No	N	1 5ft	1 3ft	15 0	0 0	15 0	9	9	137 Btuh
	Window Total								256 (sqft)					3219 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0 09	13 0/0 0	270 0	2 3	611 Btuh
2	Frame - Wood - Ext	0 09	13 0/0 0	254 5	2 3	576 Btuh
3	Frame - Wood - Ext	0 09	13 0/0 0	279 0	2 3	631 Btuh
4	Frame - Wood - Ext	0 09	13 0/0 0	75 0	2 3	170 Btuh
5	Frame - Wood - Ext	0 09	13 0/0 0	93 0	2 3	210 Btuh
6	Frame - Wood - Ext	0 09	13 0/0 0	134 0	2 3	303 Btuh
7	Frame - Wood - Ext	0 09	13 0/0 0	93 0	2 3	210 Btuh
8	Frame - Wood - Ext	0 09	13 0/0 0	54 0	2 3	122 Btuh
	Wall Total			1253 (sqft)		2835 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20 0	13 8	276 Btuh
2	Insulated - Exterior	20 0	13 8	276 Btuh
	Door Total	40 (sqft)		552 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0 032	30 0/0 0	1553 0	1 72	2671 Btuh
	Ceiling Total			1553 (sqft)		2671 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0 0	1553 (ft-perimeter)	0 0	0 Btuh
	Floor Total		1553.0 (sqft)		0 Btuh

	Envelope Subtotal:	9277 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title. Climate.FL_GAINESVILLE_REGIONAL_A
Mathis Residence

, FL

11/1/2025

Infiltration	Type	Average ACH	Volume(cuft)		Wall Ratio	CFM=	Load	
	Natural	0.15	13977		1	34.5	718	Btuh
Internal gain		Occupants	Btuh/occupant			Appliance	Load	
		4	X	230	+	3400	4320	Btuh
					Sensible Envelope Load.		14314	Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6 0-Attic)				(DGM of 0 239)		3428	Btuh
					Sensible Load All Zones		**17742**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate.FL_GAINESVILLE_REGIONAL_A
Mathis Residence

, FL

11/1/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**14314 Btuh**
	Sensible Duct Load	3428 Btuh
	Total Sensible Zone Loads	**17742 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**17742 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	1191 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	383 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**2374 Btuh**
	TOTAL GAIN	**20116 Btuh**

EQUIPMENT

1. Central Unit	#	36000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Mathis Residence
, FL Building Type: User

11/1/2025

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	6.0	10.4	62 Btuh
2	2, NFRC 0 20	Vinyl	0.26	N	60.0	10.4	624 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	8.0	10.4	83 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	14.0	10.4	146 Btuh
5	2, NFRC 0.20	Vinyl	0.26	E	17.5	10.4	182 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	6.0	10 4	62 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	10 0	10.4	104 Btuh
8	2, NFRC 0 20	Vinyl	0 26	S	75 0	10.4	780 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	4.0	10.4	42 Btuh
10	2, NFRC 0.20	Vinyl	0.26	W	15 0	10.4	156 Btuh
11	2, NFRC 0.20	Vinyl	0.26	S	15.0	10 4	156 Btuh
12	2, NFRC 0.20	Vinyl	0.26	W	10.0	10.4	104 Btuh
13	2, NFRC 0 20	Vinyl	0 26	N	15 0	10.4	156 Btuh
	Window Total				255.5(sqft)		2657 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0 089)	13 0/0.0	270	3.55	959 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	255	3.55	904 Btuh
3	Frame - Wood	- Ext	(0.089)	13 0/0.0	279	3.55	991 Btuh
4	Frame - Wood	- Ext	(0.089)	13 0/0.0	75	3.55	266 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0 0	93	3 55	330 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0 0	134	3.55	476 Btuh
7	Frame - Wood	- Ext	(0.089)	13 0/0.0	93	3.55	330 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	54	3.55	192 Btuh
	Wall Total				1253(sqft)		4447 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)	20	18.4	368 Btuh
2	Insulated - Exterior,	n	(0.460)	20	18.4	368 Btuh
	Door Total			40(sqft)		736Btuh

Ceilings	Type/Color/Surface	Ueff	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing	(0.032)	30.0/0 0	1553	1.3	1978 Btuh
	Ceiling Total			1553(sqft)		1978Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	173.0 ft(perim.)	47.2	8166 Btuh
	Floor Total			1553 sqft		8166 Btuh

	Envelope Subtotal.	17984 Btuh

Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0 20	13977	1 00	45 9	2015 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Mathis Residence
Building Type: User

, FL

11/1/2025

Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.142)	2834 Btuh
All Zones	**Sensible Subtotal All Zones**	**22833 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	22833 Btuh 0 Btuh 22833 Btuh

EQUIPMENT

1 Electric Heat Pump	#	36000 Btuh

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)

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