

Residential System Sizing Calculation

Summary

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins

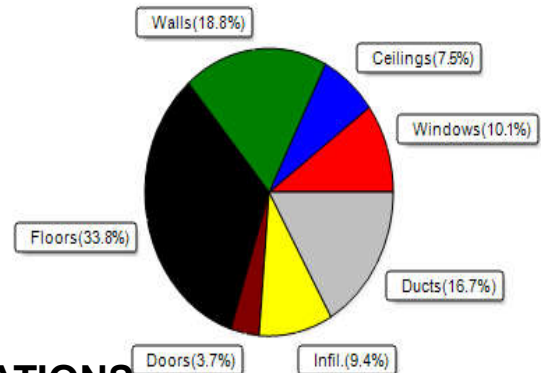
2025-01-17

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	32539 Btuh	Total cooling load calculation	29872 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	107.6 35000	Sensible (SHR = 0.75)	105.4 26250
Heat Pump + Auxiliary(0.0kW)	107.6 35000	Latent	175.9 8750
		Total (Electric Heat Pump)	117.2 35000

WINTER CALCULATIONS

Winter Heating Load (for 2287 sqft)

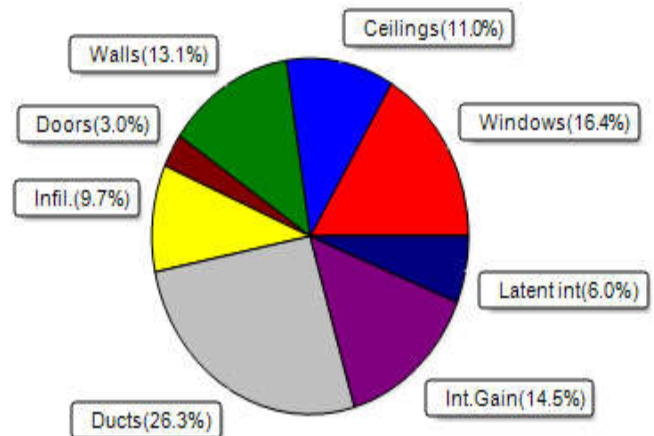
Load component	Load
Window total 293 sqft	3282 Btuh
Wall total 1724 sqft	6121 Btuh
Door total 76 sqft	1209 Btuh
Ceiling total 2393 sqft	2429 Btuh
Floor total 2287 sqft	10998 Btuh
Infiltration 70 cfm	3060 Btuh
Duct loss	5441 Btuh
Subtotal	32539 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	32539 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2287 sqft)

Load component	Load
Window total 293 sqft	4911 Btuh
Wall total 1724 sqft	3902 Btuh
Door total 76 sqft	907 Btuh
Ceiling total 2393 sqft	3280 Btuh
Floor total	0 Btuh
Infiltration 52 cfm	1090 Btuh
Internal gain	4320 Btuh
Duct gain	6489 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	24899 Btuh
Latent gain(ducts)	1365 Btuh
Latent gain(infiltration)	1809 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1800 Btuh
Total latent gain	4974 Btuh
TOTAL HEAT GAIN	29872 Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2025-01-17

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins
Building Type: User

2025-01-17

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 0.18	Vinyl	0.28	N	12.0		11.2	134 Btuh
2	2, NFRC 0.18	Vinyl	0.28	N	30.0		11.2	336 Btuh
3	2, NFRC 0.18	Vinyl	0.28	N	56.0		11.2	627 Btuh
4	2, NFRC 0.18	Vinyl	0.28	N	9.0		11.2	101 Btuh
5	2, NFRC 0.18	Vinyl	0.28	N	25.0		11.2	280 Btuh
6	2, NFRC 0.18	Vinyl	0.28	E	4.0		11.2	45 Btuh
7	2, NFRC 0.18	Vinyl	0.28	E	15.0		11.2	168 Btuh
8	2, NFRC 0.18	Vinyl	0.28	S	30.0		11.2	336 Btuh
9	2, NFRC 0.18	Vinyl	0.28	S	30.0		11.2	336 Btuh
10	2, NFRC 0.18	Vinyl	0.28	S	24.0		11.2	269 Btuh
11	2, NFRC 0.18	Vinyl	0.28	S	45.0		11.2	504 Btuh
12	2, NFRC 0.18	Vinyl	0.28	W	9.0		11.2	101 Btuh
13	2, NFRC 0.18	Vinyl	0.28	W	4.0		11.2	45 Btuh
Window Total					293.0(sqft)			3282 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	458 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	62		3.55	218 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	34		3.55	120 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.55	57 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	5		3.55	19 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	88		3.55	312 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	54		3.55	192 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	124		3.55	440 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	164		3.55	582 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.55	955 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	383 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	98		3.55	349 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.55	804 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	275		3.55	976 Btuh
Wall Total					1724(sqft)			6121 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		16		16.0	256 Btuh
2	Insulated - Exterior, n		(0.400)		16		16.0	249 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
4	Insulated - Exterior, n		(0.400)		24		16.0	384 Btuh
Door Total					76(sqft)			1209Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins
Building Type: User

2025-01-17

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing	(0.025)	38.0/0.0	2287	1.0	2322 Btuh
2	Knee wall/D/Shing	(0.025)	38.0/0.0	106	1.0	108 Btuh
	Ceiling Total			2393(sqft)		2429Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	233.0 ft(perim.)	47.2	10998 Btuh
	Floor Total			2287 sqft		10998 Btuh
	Envelope Subtotal:					24038 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.20	21040	1.00	69.8	3060 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.201)					5441 Btuh
All Zones	Sensible Subtotal All Zones					32539 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	32539 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	32539 Btuh

EQUIPMENT

1. Electric Heat Pump	#	35000 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

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins

2025-01-17

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	0.18, 0.28	No	No	N		1.5ft	1.0ft	12.0	0.7	11.3	9	23	262	Btuh
2	2 NFRC	0.18, 0.28	No	No	N		1.5ft	1.0ft	30.0	1.5	28.5	9	23	660	Btuh
3	2 NFRC	0.18, 0.28	No	No	N		17.5f	0.0ft	56.0	56.0	0.0	9	23	510	Btuh
4	2 NFRC	0.18, 0.28	No	No	N		1.5ft	1.0ft	9.0	0.7	8.3	9	23	194	Btuh
5	2 NFRC	0.18, 0.28	No	No	N		1.5ft	1.0ft	25.0	1.2	23.8	9	23	550	Btuh
6	2 NFRC	0.18, 0.28	No	No	E		1.5ft	1.0ft	4.0	4.0	0.0	9	11	36	Btuh
7	2 NFRC	0.18, 0.28	No	No	E		1.5ft	1.0ft	15.0	15.0	0.0	9	11	137	Btuh
8	2 NFRC	0.18, 0.28	No	No	S		1.5ft	1.0ft	30.0	1.5	28.5	9	23	660	Btuh
9	2 NFRC	0.18, 0.28	No	No	S		7.5ft	0.5ft	30.0	30.0	0.0	9	23	273	Btuh
10	2 NFRC	0.18, 0.28	No	No	S		7.5ft	0.3ft	24.0	17.7	6.3	9	23	304	Btuh
11	2 NFRC	0.18, 0.28	No	No	S		1.5ft	1.0ft	45.0	2.2	42.8	9	23	990	Btuh
12	2 NFRC	0.18, 0.28	No	No	W		1.5ft	1.0ft	9.0	0.0	9.0	9	9	82	Btuh
13	2 NFRC	0.18, 0.28	No	No	W		1.5ft	1.0ft	4.0	0.0	4.0	9	9	36	Btuh
	Excursion													215	Btuh
	Window Total								293 (sqft)					4911 Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load	
								Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.0	129.0			2.3		292 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0	61.5			2.3		139 Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0	33.8			2.3		76 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	15.9			2.3		36 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	5.3			2.3		12 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	87.8			2.3		199 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	54.0			2.3		122 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	124.0			2.3		281 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0	164.0			2.3		371 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0	269.0			2.3		609 Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.0	108.0			2.3		244 Btuh	
12	Frame - Wood - Ext						0.09	13.0/0.0	36.0			2.3		81 Btuh	
13	Frame - Wood - Ext						0.09	13.0/0.0	98.3			2.3		222 Btuh	
14	Frame - Wood - Ext						0.09	13.0/0.0	36.0			2.3		81 Btuh	
15	Frame - Wood - Ext						0.09	13.0/0.0	226.5			2.3		513 Btuh	
16	Frame - Wood - Ext						0.09	13.0/0.0	275.0			2.3		622 Btuh	
	Wall Total								1724 (sqft)					3902 Btuh	
Doors	Type								Area (sqft)			HTM		Load	
1	Insulated - Exterior								16.0			12.0		192 Btuh	
2	Insulated - Exterior								15.6			12.0		187 Btuh	
3	Insulated - Exterior								20.0			12.0		240 Btuh	
4	Insulated - Exterior								24.0			12.0		288 Btuh	
	Door Total								76 (sqft)					907 Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load	
1	Vented Attic/DarkShingle						0.025	38.0/0.0	2287.0			1.37		3134 Btuh	
2	Knee wall to attic/DarkShingle						0.025	38.0/0.0	106.0			1.37		145 Btuh	
	Ceiling Total								2393 (sqft)					3280 Btuh	
Floors	Type							R-Value	Size			HTM		Load	
1	Slab On Grade							0.0	2287 (ft-perimeter)			0.0		0 Btuh	
	Floor Total								2287.0 (sqft)					0 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins

Climate:FL_GAINESVILLE_REGIONAL_A

2025-01-17

	Envelope Subtotal:					12999 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.15	21040	1	52.3	1090 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		4	X 230	+	3400	4320 Btuh
	Sensible Envelope Load:					18409 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.353)					6489 Btuh
	Sensible Load All Zones					24899 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Tyrone & Thayla Mullins
430 NW Mule Way
Lake City, FL

Project Title:
250013 Mullins

Climate:FL_GAINESVILLE_REGIONAL_A

2025-01-17

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18409 Btuh
	Sensible Duct Load	6489 Btuh
	Total Sensible Zone Loads	24899 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	24899 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1809 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1365 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	1000 Btuh
	Latent total gain	4974 Btuh
	TOTAL GAIN	29872 Btuh

EQUIPMENT

1. Central Unit	#	35000 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