

Residential System Sizing Calculation

Summary

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title:
250363 Graham Res

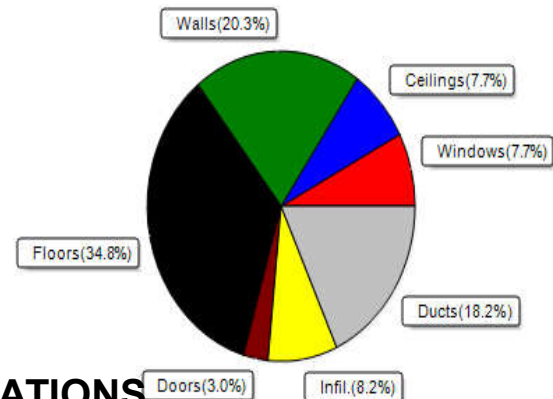
2025-04-08

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	28447 Btuh	Total cooling load calculation	24236 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	109.0 31000	Sensible (SHR = 0.75)	111.9 23250
Heat Pump + Auxiliary(0.0kW)	109.0 31000	Latent	223.8 7750
		Total (Electric Heat Pump)	127.9 31000

WINTER CALCULATIONS

Winter Heating Load (for 2159 sqft)

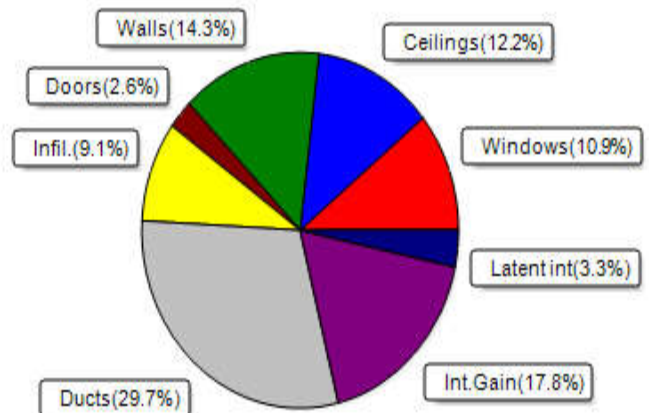
Load component	Load
Window total 182 sqft	2188 Btuh
Wall total 1637 sqft	5788 Btuh
Door total 73 sqft	851 Btuh
Ceiling total 2159 sqft	2192 Btuh
Floor total 2159 sqft	9912 Btuh
Infiltration 53 cfm	2334 Btuh
Duct loss	5182 Btuh
Subtotal	28447 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	28447 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2159 sqft)

Load component	Load
Window total 182 sqft	2640 Btuh
Wall total 1637 sqft	3461 Btuh
Door total 73 sqft	638 Btuh
Ceiling total 2159 sqft	2959 Btuh
Floor total	0 Btuh
Infiltration 40 cfm	832 Btuh
Internal gain	4320 Btuh
Duct gain	5923 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	20773 Btuh
Latent gain(ducts)	1283 Btuh
Latent gain(infiltration)	1380 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	800 Btuh
Total latent gain	3463 Btuh
TOTAL HEAT GAIN	24236 Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2025-04-08

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title:
250363 Graham Res
Building Type: User

2025-04-08

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 0.22	Vinyl	0.30	N	26.7		12.0	320 Btuh
2	2, NFRC 0.22	Vinyl	0.30	N	21.0		12.0	252 Btuh
3	2, NFRC 0.22	Vinyl	0.30	W	13.3		12.0	160 Btuh
4	2, NFRC 0.22	Vinyl	0.30	N	9.0		12.0	108 Btuh
5	2, NFRC 0.22	Vinyl	0.30	E	9.0		12.0	108 Btuh
6	2, NFRC 0.22	Vinyl	0.30	E	8.0		12.0	96 Btuh
7	2, NFRC 0.22	Vinyl	0.30	S	26.7		12.0	320 Btuh
8	2, NFRC 0.22	Vinyl	0.30	S	26.7		12.0	320 Btuh
9	2, NFRC 0.22	Vinyl	0.30	S	13.3		12.0	160 Btuh
10	2, NFRC 0.22	Vinyl	0.30	W	18.0		12.0	216 Btuh
11	2, NFRC 0.22	Vinyl	0.30	W	10.7		12.0	128 Btuh
Window Total					182.3(sqft)			2188 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	254		3.55	902 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	52		3.55	185 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	171		3.55	607 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	291		3.55	1034 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	160		3.55	568 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	145		3.55	514 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	44		3.55	156 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	101		3.55	359 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	349		3.55	1240 Btuh
10	Face Br - Wood	- Ext	(0.080)	13.0/0.0	70		3.19	223 Btuh
Wall Total					1637(sqft)			5788 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.290)		7		11.6	77 Btuh
2	Insulated - Exterior, n		(0.290)		7		11.6	77 Btuh
3	Insulated - Exterior, n		(0.290)		7		11.6	77 Btuh
4	Insulated - Garage, n		(0.290)		20		11.6	232 Btuh
5	Insulated - Exterior, n		(0.290)		13		11.6	155 Btuh
6	Insulated - Exterior, n		(0.290)		13		11.6	155 Btuh
7	Insulated - Exterior, n		(0.290)		7		11.6	77 Btuh
Door Total					73(sqft)			851Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	2159		1.0	2192 Btuh
Ceiling Total					2159(sqft)			2192Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	210.0 ft(perim.)		47.2	9912 Btuh
Floor Total					2159 sqft			9912 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title:
250363 Graham Res
Building Type: User

2025-04-08

	Envelope Subtotal:					20930 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.16	19431	1.00	53.2	2334 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.223)					5182 Btuh
All Zones	Sensible Subtotal All Zones					28447 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	28447 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	28447 Btuh

EQUIPMENT

1. Electric Heat Pump	#	31000 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

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title:
250363 Graham Res

2025-04-08

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	0.22, 0.30	No	No	N		9.5ft	1.3ft	26.7	26.7	0.0	10	12	275	Btuh	
2	2 NFRC	0.22, 0.30	No	No	N		9.5ft	0.5ft	21.0	21.0	0.0	10	12	217	Btuh	
3	2 NFRC	0.22, 0.30	No	No	W		35.0f	1.3ft	13.3	13.3	0.0	10	27	138	Btuh	
4	2 NFRC	0.22, 0.30	No	No	N		1.5ft	1.0ft	9.0	9.0	0.0	10	12	93	Btuh	
5	2 NFRC	0.22, 0.30	No	No	E		1.5ft	5.0ft	9.0	0.0	9.0	10	27	242	Btuh	
6	2 NFRC	0.22, 0.30	No	No	E		1.5ft	9.5ft	8.0	0.0	8.0	10	27	215	Btuh	
7	2 NFRC	0.22, 0.30	No	No	S		8.0ft	1.3ft	26.7	0.0	26.7	10	10	275	Btuh	
8	2 NFRC	0.22, 0.30	No	No	S		10.0f	2.0ft	26.7	0.0	26.7	10	10	275	Btuh	
9	2 NFRC	0.22, 0.30	No	No	S		10.0f	1.3ft	13.3	0.0	13.3	10	10	138	Btuh	
10	2 NFRC	0.22, 0.30	No	No	W		1.5ft	1.7ft	18.0	0.0	18.0	10	27	484	Btuh	
11	2 NFRC	0.22, 0.30	No	No	W		1.5ft	1.7ft	10.7	0.0	10.7	10	27	287	Btuh	
	Window Total									182 (sqft)					2640 Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load		
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	254.0			2.3		575 Btuh		
2	Frame - Wood - Ext						0.09	13.0/0.0	52.0			2.3		118 Btuh		
3	Frame - Wood - Ext						0.09	13.0/0.0	171.0			2.3		387 Btuh		
4	Frame - Wood - Ext						0.09	13.0/0.0	291.3			2.3		659 Btuh		
5	Frame - Wood - Adj						0.09	13.0/0.0	160.0			1.7		270 Btuh		
6	Frame - Wood - Adj						0.09	13.0/0.0	144.8			1.7		244 Btuh		
7	Frame - Wood - Ext						0.09	13.0/0.0	44.0			2.3		100 Btuh		
8	Frame - Wood - Ext						0.09	13.0/0.0	101.0			2.3		229 Btuh		
9	Frame - Wood - Ext						0.09	13.0/0.0	349.3			2.3		791 Btuh		
10	Face Brick - Wood - Ext						0.08	13.0/0.0	70.0			1.3		89 Btuh		
	Wall Total									1637 (sqft)					3461 Btuh	
Doors	Type						Area (sqft)			HTM		Load				
1	Insulated - Exterior						6.7			8.7		58 Btuh				
2	Insulated - Exterior						6.7			8.7		58 Btuh				
3	Insulated - Exterior						6.7			8.7		58 Btuh				
4	Insulated - Garage						20.0			8.7		174 Btuh				
5	Insulated - Exterior						13.3			8.7		116 Btuh				
6	Insulated - Exterior						13.3			8.7		116 Btuh				
7	Insulated - Exterior						6.7			8.7		58 Btuh				
	Door Total									73 (sqft)					638 Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load		
1	Vented Attic/DarkShingle						0.025	38.0/0.0	2159.0			1.37		2959 Btuh		
	Ceiling Total									2159 (sqft)					2959 Btuh	
Floors	Type						R-Value			Size			HTM		Load	
1	Slab On Grade						0.0			2159 (ft-perimeter)			0.0		0 Btuh	
	Floor Total									2159.0 (sqft)					0 Btuh	
	Envelope Subtotal:													9698 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
250363 Graham Res

2025-04-08

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 19431	Wall Ratio 1	CFM= 39.9	Load 832 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	3400	Load 4320 Btuh
					Sensible Envelope Load:	14850 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.399)					5923 Btuh
					Sensible Load All Zones	20773 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Murvyn Graham
345 SW Beacon Way
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
250363 Graham Res

2025-04-08

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14850 Btuh
	Sensible Duct Load	5923 Btuh
	Total Sensible Zone Loads	20773 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20773 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1380 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1283 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3463 Btuh
	TOTAL GAIN	24236 Btuh

EQUIPMENT

1. Central Unit	#	31000 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