

Residential System Sizing Calculation

Summary

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res

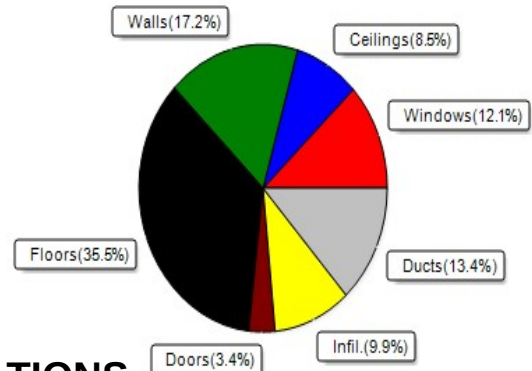
9/8/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(30) Altitude(164 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (78F) Humidity difference(47gr.)			
Winter design temperature(MJ8 99%/Cu)	32 F	Summer design temperature(MJ8 99%/Cu)	90 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	38 F	Summer temperature difference	25 F
Total heating load calculation	21961 Btuh	Total cooling load calculation	20965 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	109.3 24000	Sensible (SHR = 0.75)	99.5 18000
Heat Pump + Auxiliary(0.0kW)	109.3 24000	Latent	209.2 6000
		Total (Electric Heat Pump)	114.5 24000

WINTER CALCULATIONS

Winter Heating Load (for 1740 sqft)

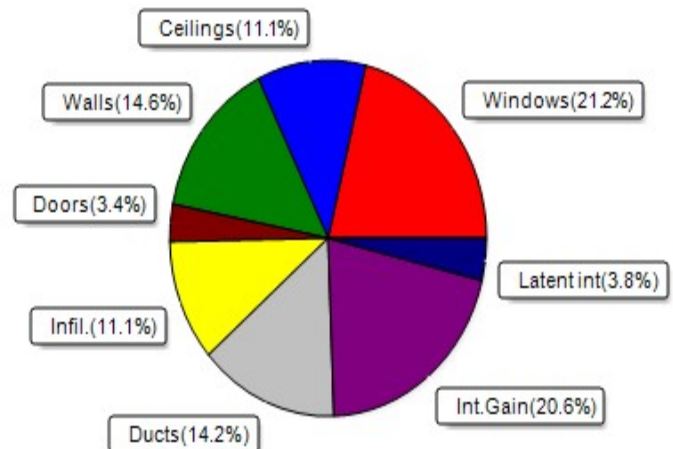
Load component		Load	
Window total	218 sqft	2654 Btuh	
Wall total	1122 sqft	3786 Btuh	
Door total	49 sqft	750 Btuh	
Ceiling total	1930 sqft	1861 Btuh	
Floor total	1740 sqft	7802 Btuh	
Infiltration	52 cfm	2174 Btuh	
Duct loss		2936 Btuh	
Subtotal		21961 Btuh	
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
TOTAL HEAT LOSS		21961 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1740 sqft)

Load component		Load	
Window total	218 sqft	4442 Btuh	
Wall total	1122 sqft	3071 Btuh	
Door total	49 sqft	710 Btuh	
Ceiling total	1930 sqft	2326 Btuh	
Floor total		0 Btuh	
Infiltration	39 cfm	1072 Btuh	
Internal gain		4320 Btuh	
Duct gain		2155 Btuh	
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		18097 Btuh	
Latent gain(ducts)		822 Btuh	
Latent gain(infiltration)		1246 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		2868 Btuh	
TOTAL HEAT GAIN		20965 Btuh	



8th Edition



EnergyGauge® / USRCZB v8.1.08

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2025-09-08**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res
Building Type: User

9/8/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 38.0 °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 0.22	Vinyl	0.32	N	7.5		12.2	91 Btuh	
2	2, NFRC 0.22	Vinyl	0.32	N	22.2		12.2	270 Btuh	
3	2, NFRC 0.22	Vinyl	0.32	N	8.0		12.2	97 Btuh	
4	2, NFRC 0.22	Vinyl	0.32	E	8.0		12.2	97 Btuh	
5	2, NFRC 0.22	Vinyl	0.32	E	30.0		12.2	365 Btuh	
6	2, NFRC 0.22	Vinyl	0.32	S	36.0		12.2	438 Btuh	
7	2, NFRC 0.22	Vinyl	0.32	S	36.0		12.2	438 Btuh	
8	2, NFRC 0.22	Vinyl	0.32	S	19.6		12.2	238 Btuh	
9	2, NFRC 0.22	Vinyl	0.32	S	36.0		12.2	438 Btuh	
10	2, NFRC 0.22	Vinyl	0.32	W	15.0		12.2	182 Btuh	
	Window Total					218.3(sqft)			2654 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load	
1	Frame - Wood	- Adj	(0.089)	13.0/0.0	116		3.37	391 Btuh	
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	154		3.37	518 Btuh	
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.37	308 Btuh	
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	210		3.37	708 Btuh	
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	89		3.37	301 Btuh	
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.37	54 Btuh	
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	107		3.37	361 Btuh	
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.37	54 Btuh	
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.37	310 Btuh	
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	231		3.37	779 Btuh	
	Wall Total					1122(sqft)			3786 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load	
1	Insulated - Garage,	n	(0.400)		20		15.2	304 Btuh	
2	Insulated - Exterior,	n	(0.400)		13		15.2	203 Btuh	
3	Insulated - Exterior,	n	(0.400)		16		15.2	243 Btuh	
	Door Total					49(sqft)			750Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load	
1	Flat ceil/D/Shing		(0.241)	0.0/22.0	990		0.96	954 Btuh	
2	Sloped ce/D/Shing		(0.241)	0.0/22.0	782		0.96	754 Btuh	
3	Knee wall/D/Shing		(0.241)	0.0/22.0	158		0.96	152 Btuh	
	Ceiling Total					1930(sqft)			1861Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load	
1	Slab On Grade		(1.180)	0.0	174.0 ft(perim.)		44.8	7802 Btuh	
	Floor Total					1740 sqft			7802 Btuh
	Envelope Subtotal:							16852 Btuh	

Manual J Winter Calculations

Residential Load - Component Details (continued)

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res
Building Type: User

9/8/2025

Infiltration	Type Natural	Wholehouse ACH 0.20	Volume(cuft) 15834	Wall Ratio 1.00	CFM= 52.3	2174 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Con) (DLM of 0.154)					2936 Btuh
All Zones	Sensible Subtotal All Zones					21961 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	21961 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	21961 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24000 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

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res

9/8/2025

Reference City: Gainesville, FL (Defaults)
Humidity difference: 47gr.

Temperature Difference: 25.0F(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	0.22, 0.32	No	No	N	9.5ft	0.5ft	7.5	7.5	0.0	13	29	95 Btuh
2	2 NFRC	0.22, 0.32	No	No	N	9.5ft	0.5ft	22.2	22.2	0.0	13	29	280 Btuh
3	2 NFRC	0.22, 0.32	No	No	N	1.5ft	0.7ft	8.0	2.3	5.7	13	29	195 Btuh
4	2 NFRC	0.22, 0.32	No	No	E	1.5ft	5.0ft	8.0	6.2	1.8	13	14	104 Btuh
5	2 NFRC	0.22, 0.32	No	No	E	1.5ft	9.0ft	30.0	0.0	30.0	13	14	432 Btuh
6	2 NFRC	0.22, 0.32	No	No	S	9.5ft	0.5ft	36.0	36.0	0.0	13	29	454 Btuh
7	2 NFRC	0.22, 0.32	No	No	S	6.0ft	4.0ft	36.0	5.9	30.1	13	29	953 Btuh
8	2 NFRC	0.22, 0.32	No	No	S	6.0ft	6.0ft	19.6	0.0	19.6	13	29	571 Btuh
9	2 NFRC	0.22, 0.32	No	No	S	9.5ft	0.5ft	36.0	36.0	0.0	13	29	454 Btuh
10	2 NFRC	0.22, 0.32	No	No	W	1.5ft	8.0ft	15.0	0.0	15.0	13	13	189 Btuh
	Excursion												713 Btuh
	Window Total							218 (sqft)					4442 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load			
					Cav/Sheath								
1	Frame - Wood - Adj		0.09		13.0/0.0		116.0		2.2		257 Btuh		
2	Frame - Wood - Ext		0.09		13.0/0.0		153.6		2.8		429 Btuh		
3	Frame - Wood - Ext		0.09		13.0/0.0		91.3		2.8		255 Btuh		
4	Frame - Wood - Ext		0.09		13.0/0.0		210.0		2.8		587 Btuh		
5	Frame - Wood - Ext		0.09		13.0/0.0		89.3		2.8		250 Btuh		
6	Frame - Wood - Ext		0.09		13.0/0.0		16.0		2.8		45 Btuh		
7	Frame - Wood - Ext		0.09		13.0/0.0		107.1		2.8		299 Btuh		
8	Frame - Wood - Ext		0.09		13.0/0.0		16.0		2.8		45 Btuh		
9	Frame - Wood - Ext		0.09		13.0/0.0		92.0		2.8		257 Btuh		
10	Frame - Wood - Ext		0.09		13.0/0.0		231.0		2.8		646 Btuh		
	Wall Total							1122 (sqft)				3071 Btuh	
Doors	Type	Area (sqft)		HTM		Load							
1	Insulated - Garage		20.0		14.4		288 Btuh						
2	Insulated - Exterior		13.3		14.4		192 Btuh						
3	Insulated - Exterior		16.0		14.4		230 Btuh						
	Door Total						49 (sqft)				710 Btuh		
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load			
1	Unvented Attic/DarkShingle		0.241		0.0/22.0		990.0		1.20		1193 Btuh		
2	Unvented Attic/DarkShingle		0.241		0.0/22.0		782.0		1.20		942 Btuh		
3	Knee wall to attic/DarkShingle		0.241		0.0/22.0		158.0		1.20		190 Btuh		
	Ceiling Total							1930 (sqft)			2326 Btuh		
Floors	Type	R-Value		Size		HTM		Load					
1	Slab On Grade		0.0		1740 (ft-perimeter)		0.0		0 Btuh				
	Floor Total							1740.0 (sqft)			0 Btuh		
	Envelope Subtotal:											10549 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res

Climate:FL_GAINESVILLE_REGIONAL_A

9/8/2025

Infiltration	Type Natural	Average ACH 0.15	Volume(cuft) 15834	Wall Ratio 1	CFM= 39.2	Load 1072 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	3400	Load 4320 Btuh
	Sensible Envelope Load:					15942 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R8.0-Condi) (DGM of 0.135)					2155 Btuh
	Sensible Load All Zones					18097 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Paul & Jennifer Beatty
566 Grassland Way
Lake City, FL

Project Title:
250833 Beatty Res

Climate:FL_GAINESVILLE_REGIONAL_A

9/8/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15942 Btuh
	Sensible Duct Load	2155 Btuh
	Total Sensible Zone Loads	18097 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18097 Btuh
	Latent infiltration gain (for 47 gr. humidity difference)	1246 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	822 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2868 Btuh
	TOTAL GAIN	20965 Btuh

EQUIPMENT

1. Central Unit	#	24000 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