

Residential System Sizing Calculation

Summary

Jr Smith
434 SW Sparrow Terr
Lake City, FL

Project Title:
250203 Jr Smith

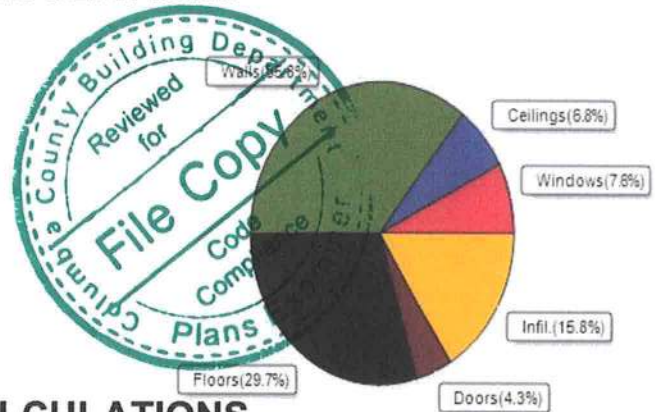
2/21/2025

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	19727 Btuh	Total cooling load calculation	14684 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	106.5 21000	Sensible (SHR = 0.75)	126.5 15750
Heat Pump + Auxiliary(0.0kW)	106.5 21000	Latent	234.5 5250
		Total (Electric Heat Pump)	143.0 21000

WINTER CALCULATIONS

Winter Heating Load (for 960 sqft)

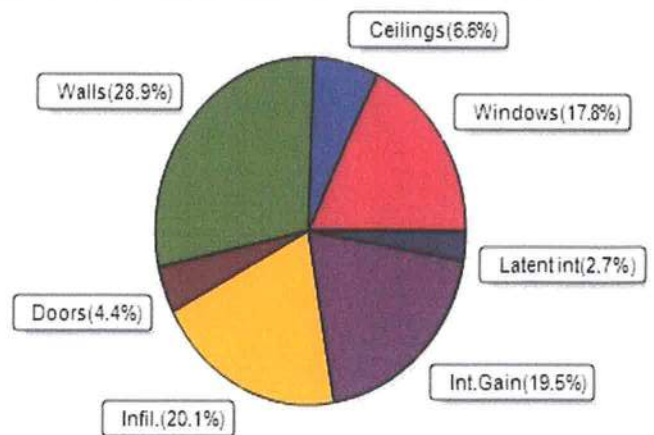
Load component		Load	
Window total	108 sqft	1507 Btuh	
Wall total	1665 sqft	7057 Btuh	
Door total	53 sqft	853 Btuh	
Ceiling total	990 sqft	1346 Btuh	
Floor total	960 sqft	5853 Btuh	
Infiltration	71 cfm	3110 Btuh	
Duct loss		0 Btuh	
Subtotal		19727 Btuh	
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
TOTAL HEAT LOSS		19727 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 960 sqft)

Load component		Load	
Window total	108 sqft	2619 Btuh	
Wall total	1665 sqft	4242 Btuh	
Door total	53 sqft	640 Btuh	
Ceiling total	990 sqft	976 Btuh	
Floor total		0 Btuh	
Infiltration	53 cfm	1108 Btuh	
Internal gain		2860 Btuh	
Duct gain		0 Btuh	
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		12446 Btuh	
Latent gain(ducts)		0 Btuh	
Latent gain(infiltration)		1839 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		400 Btuh	
Total latent gain		2239 Btuh	
TOTAL HEAT GAIN		14684 Btuh	



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2025-02-21

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jr Smith
434 SW Sparrow Terr
Lake City, FL

Project Title:
250203 Jr Smith
Building Type: User

2/21/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)

Winter Setpoint: 70 °F (Required Manual J default)

This calculation is for Worst Case. The house has been rotated 315 degrees.

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Vinyl	0.35	NW	26.7		14.0	373 Btuh
2	2, NFRC 0.25	Vinyl	0.35	NW	15.0		14.0	210 Btuh
3	2, NFRC 0.25	Vinyl	0.35	NE	30.0		14.0	420 Btuh
4	2, NFRC 0.25	Vinyl	0.35	SW	36.0		14.0	504 Btuh
	Window Total					107.7(sqft)		1507 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Steel	- Ext	(0.112)	13.0/0.0	410		4.49	1841 Btuh
2	Frame - Steel	- Ext	(0.112)	13.0/0.0	418		4.49	1877 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	445		3.55	1580 Btuh
4	Frame - Steel	- Ext	(0.112)	13.0/0.0	392		4.49	1760 Btuh
	Wall Total					1665(sqft)		7057 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		13		16.0	213 Btuh
2	Insulated - Garage, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
	Door Total					53(sqft)		853Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Metal		(0.034)	30.0/0.0	990		1.4	1346 Btuh
	Ceiling Total					990(sqft)		1346Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	124.0 ft(perim.)		47.2	5853 Btuh
	Floor Total					960 sqft		5853 Btuh
	Envelope Subtotal:							16617 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.29	14880	1.00	70.9		3110 Btuh
Duct load	Average sealed, R6.0, Supply(Con), Return(Con)						(DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones							19727 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jr Smith
434 SW Sparrow Terr
Lake City, FL

Project Title:
250203 Jr Smith
Building Type: User

2/21/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	19727 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	19727 Btuh

EQUIPMENT

1. Electric Heat Pump	#	21000 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

Jr Smith
434 SW Sparrow Terr
Lake City, FL

Project Title:
250203 Jr Smith

2/21/2025

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

This calculation is for Worst Case. The house has been rotated 315 degrees.

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, 0.35	No	No	NW	12.5f	1.0ft	26.7	0.0	26.7	12	23	625	Btuh	
2	2 NFRC	0.25, 0.35	No	No	NW	12.5f	1.0ft	15.0	0.0	15.0	12	23	352	Btuh	
3	2 NFRC	0.25, 0.35	No	No	NE	0.5ft	7.3ft	30.0	0.0	30.0	12	23	703	Btuh	
4	2 NFRC	0.25, 0.35	No	No	SW	8.5ft	1.0ft	36.0	36.0	0.0	12	25	429	Btuh	
	Excursion A														
	Window Total							108 (sqft)					2619 Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load		
								Cav/Sheath							
	1	Frame - Steel - Ext					0.11	13.0/0.0	410.0		2.9		1173	Btuh	
	2	Frame - Steel - Ext					0.11	13.0/0.0	418.0		2.9		1196	Btuh	
	3	Frame - Wood - Adj					0.09	13.0/0.0	445.0		1.7		750	Btuh	
	4	Frame - Steel - Ext					0.11	13.0/0.0	392.0		2.9		1122	Btuh	
	Wall Total							1665 (sqft)					4242 Btuh		
Doors	Type								Area (sqft)		HTM		Load		
	1	Insulated - Exterior							13.3		12.0		160	Btuh	
	2	Insulated - Garage							20.0		12.0		240	Btuh	
	3	Insulated - Exterior							20.0		12.0		240	Btuh	
	Door Total							53 (sqft)					640 Btuh		
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load		
	1	SnglAsmb no airsp/DarkMetal					0.034	30.0/0.0	990.0		0.99		976	Btuh	
	Ceiling Total							990 (sqft)					976 Btuh		
Floors	Type							R-Value	Size		HTM		Load		
	1	Slab On Grade						0.0	960 (ft-perimeter)		0.0		0	Btuh	
	Floor Total							960.0 (sqft)					0 Btuh		
	Envelope Subtotal:												8478 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=	Load	
	Natural						0.21		14880		1		53.2	1108	Btuh
Internal gain							Occupants		Btuh/occupant		Appliance		Load		
							2		X 230	+	2400		2860	Btuh	
	Sensible Envelope Load:												12446 Btuh		
Duct load	Average sealed, Supply(R6.0-Condi), Return(R6.0-Condi)										(DGM of 0.000)		0 Btuh		
	Sensible Load All Zones												12446 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jr Smith
434 SW Sparrow Terr
Lake City, FL

Project Title:
250203 Jr Smith

Climate:FL_GAINESVILLE_REGIONAL_A

2/21/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12446 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	12446 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	12446 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1839 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2239 Btuh
	TOTAL GAIN	14684 Btuh

EQUIPMENT

1. Central Unit	#	21000 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