Residential System Sizing Calculation

Summary

James & Lori David

Lake City, FL 32024

Project Title:
Lot 10 Rose Pointe

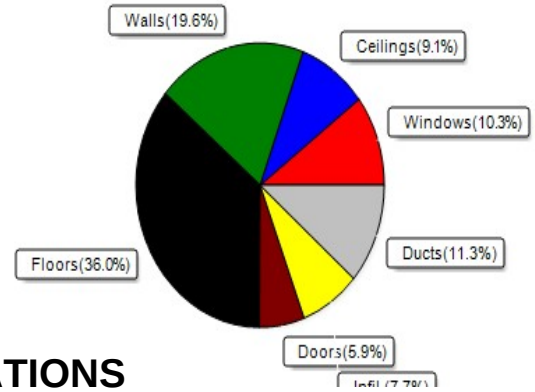
8/25/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 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	**20955**	**Btuh**	**Total cooling load calculation**	**18015**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	143.2	30000	Sensible (SHR = 0.80)	154.8	24000
Heat Pump + Auxiliary(0.0kW)	143.2	30000	Latent	238.5	6000
			Total (Electric Heat Pump)	166.5	30000

WINTER CALCULATIONS

Winter Heating Load (for 1496 sqft)

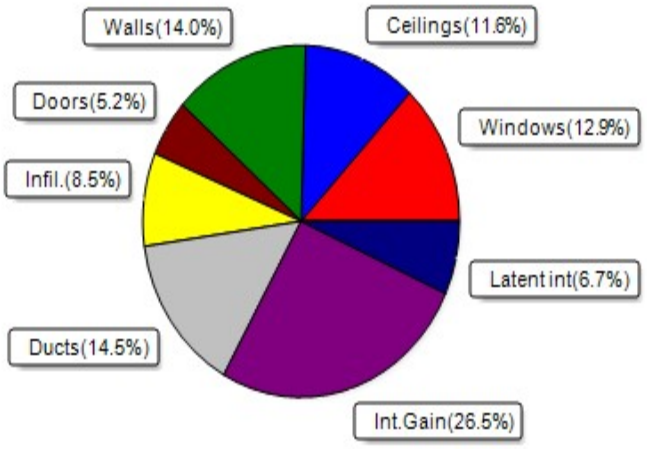
Load component			Load	
Window total	163	sqft	2152	Btuh
Wall total	1193	sqft	4115	Btuh
Door total	78	sqft	1244	Btuh
Ceiling total	1496	sqft	1906	Btuh
Floor total	1496	sqft	7552	Btuh
Infiltration	37	cfm	1615	Btuh
Duct loss			2372	Btuh
Subtotal			**20955**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**20955**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1496 sqft)

Load component			Load	
Window total	163	sqft	2327	Btuh
Wall total	1193	sqft	2529	Btuh
Door total	78	sqft	933	Btuh
Ceiling total	1496	sqft	2096	Btuh
Floor total			0	Btuh
Infiltration	28	cfm	575	Btuh
Internal gain			4780	Btuh
Duct gain			2258	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**15499**	**Btuh**
Latent gain(ducts)			361	Btuh
Latent gain(infiltration)			955	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**2516**	**Btuh**
TOTAL HEAT GAIN			**18015**	**Btuh**



Powered by ACCA MANUAL J 8th Edition

EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 8-25-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

James & Lori David

Project Title:
Lot 10 Rose Pointe

Lake City, FL 32024

8/25/2025

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

	Type*					Overhang		Window Area(sqft)			HTM		Load
Window	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
1	2 NFRC	0.22, 0.33		I-A	No	N	1.5ft	1.3ft	4.0	0.0	4.0	8	8	31 Btuh
2	2 NFRC	0.22, 0.33		I-A	No	E	1.5ft	1.3ft	45.0	0.0	45.0	8	15	684 Btuh
3	2 NFRC	0.22, 0.33		I-A	No	E	1.5ft	1.3ft	20.0	0.0	20.0	8	15	304 Btuh
4	2 NFRC	0.22, 0.33		I-A	No	E	1.5ft	1.3ft	9.0	0.0	9.0	8	15	137 Btuh
5	2 NFRC	0.22, 0.33		I-A	No	S	1.5ft	1.3ft	16.0	16.0	0.0	8	9	123 Btuh
6	2 NFRC	0.22, 0.33		I-A	No	W	1.5ft	1.3ft	54.0	0.0	54.0	8	15	821 Btuh
7	2 NFRC	0.22, 0.33		I-A	No	W	1.5ft	1.3ft	15.0	0.0	15.0	8	15	228 Btuh
	Window Total								163 (sqft)					2327 Btuh

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load
			Cav/Sheath			
1	Frame - Wood - Ext	0.09	13.0/0.6	278.0	2.2	611 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.6	321.0	2.2	706 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.6	257.0	2.2	565 Btuh
4	Frame - Wood - Adj	0.09	13.0/0.6	168.2	1.6	276 Btuh
5	Frame - Wood - Ext	0.09	13.0/0.6	82.0	2.2	180 Btuh
6	Frame - Wood - Ext	0.09	13.0/0.6	87.0	2.2	191 Btuh
	Wall Total			1193 (sqft)		2529 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	40.0	12.0	480 Btuh
2	Insulated - Garage	17.8	12.0	213 Btuh
3	Insulated - Exterior	20.0	12.0	240 Btuh
	Door Total	78 (sqft)		933 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/Light/Metal	0.032	30.0/0.0	1496.0	1.40	2096 Btuh
	Ceiling Total			1496 (sqft)		2096 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1496 (ft-perimeter)	0.0	0 Btuh
	Floor Total		1496.0 (sqft)		0 Btuh

	Envelope Subtotal:	7886 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	13464	1	27.7	575 Btuh

Internal gain	Occupants	Btuh/occupant		Appliance	Load
	6	X 230	+	3400	4780 Btuh

	Sensible Envelope Load:	13241 Btuh
Duct load	Extremely sealed, Supply(R8.0-Attic), Return(R8.0-Attic) (DGM of 0.171)	2258 Btuh
	Sensible Load All Zones	**15499 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

James & Lori David
Lake City, FL 32024

Project Title: Lot 10 Rose Pointe
Climate:FL_GAINESVILLE_REGIONAL_A

8/25/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**13241**	**Btuh**
	Sensible Duct Load	2258	Btuh
	Total Sensible Zone Loads	**15499**	**Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0	Btuh
	Blower	0	Btuh
	Total sensible gain	**15499**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	955	Btuh
	Latent ventilation gain	0	Btuh
	Latent duct gain	361	Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200	Btuh
	Latent other gain	0	Btuh
	Latent total gain	**2516**	**Btuh**
	TOTAL GAIN	**18015**	**Btuh**

EQUIPMENT

1. Central Unit	#	30000 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

James & Lori David
Lake City, FL 32024

Project Title:
Lot 10 Rose Pointe
Building Type: User

8/25/2025

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 0.22	Vinyl	0.33	N	4.0	13.2	53 Btuh
2	2, NFRC 0.22	Vinyl	0.33	E	45.0	13.2	594 Btuh
3	2, NFRC 0.22	Vinyl	0.33	E	20.0	13.2	264 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	9.0	13.2	119 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	16.0	13.2	211 Btuh
6	2, NFRC 0.22	Vinyl	0.33	W	54.0	13.2	713 Btuh
7	2, NFRC 0.22	Vinyl	0.33	W	15.0	13.2	198 Btuh
	Window Total				163.0(sqft)		2152 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	278	3.45	959 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	321	3.45	1107 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	257	3.45	886 Btuh
4	Frame - Wood	- Adj	(0.086)	13.0/0.6	168	3.45	580 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	82	3.45	283 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	87	3.45	300 Btuh
	Wall Total				1193(sqft)		4115 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)	40	16.0	640 Btuh
2	Insulated - Garage,	n	(0.400)	18	16.0	284 Btuh
3	Insulated - Exterior,	n	(0.400)	20	16.0	320 Btuh
	Door Total			78(sqft)		1244Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/L/Metal	(0.032)	30.0/0.0	1496	1.3	1906 Btuh
	Ceiling Total			1496(sqft)		1906Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	160.0 ft(perim.)	47.2	7552 Btuh
	Floor Total			1496 sqft		7552 Btuh

	Envelope Subtotal:	16969 Btuh

Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.16	13464	1.00	36.9	1615 Btuh

Duct load	Extremely sealed, R8.0, Supply(Att), Return(Att) (DLM of 0.128)	2372 Btuh
All Zones	**Sensible Subtotal All Zones**	**20955 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

James & Lori David
Lake City, FL 32024

Project Title:
Lot 10 Rose Pointe
Building Type: User

8/25/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	20955 Btuh 0 Btuh 20955 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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)

Powered by ACCA MANUAL J8

Version 8