

Residential System Sizing Calculation

Summary

Albritton Residence

Project Title:
Norris Construction Albritton

Lake City, FL 32055

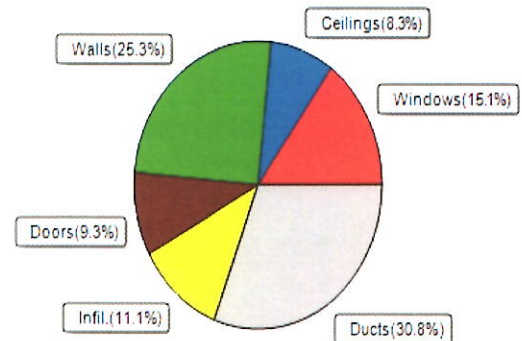
1/20/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(30) Altitude(164 ft.) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (76F) Humidity difference(47gr.)					
Winter design temperature(MJ8 99%)	33	F	Summer design temperature(MJ8 99%)	92	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	17	F
Total heating load calculation	18265	Btuh	Total cooling load calculation	23760	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	328.5	60000	Sensible (SHR = 0.75)	235.0	45000
Heat Pump + Auxiliary(0.0kW)	328.5	60000	Latent	325.2	15000
			Total (Electric Heat Pump)	252.5	60000

WINTER CALCULATIONS

Winter Heating Load (for 2398 sqft)

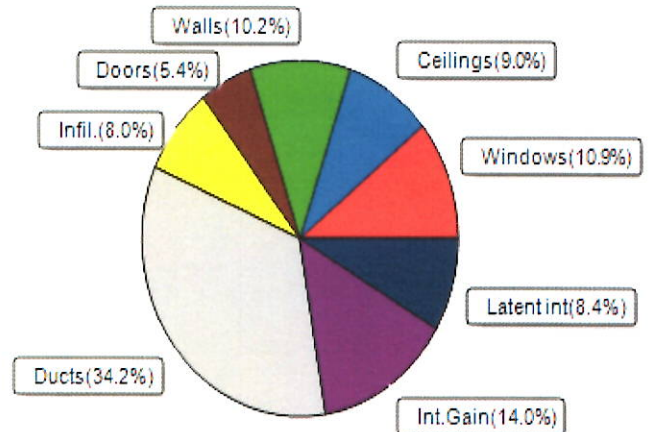
Load component			Load	
Window total	226	sqft	2759	Btuh
Wall total	1690	sqft	4628	Btuh
Door total	100	sqft	1702	Btuh
Ceiling total	2398	sqft	1519	Btuh
Floor total	2398	sqft	0	Btuh
Infiltration	50	cfm	2029	Btuh
Duct loss			5627	Btuh
Subtotal			18265	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			18265	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2398 sqft)

Load component			Load	
Window total	226	sqft	2582	Btuh
Wall total	1690	sqft	2426	Btuh
Door total	100	sqft	1288	Btuh
Ceiling total	2398	sqft	2135	Btuh
Floor total			0	Btuh
Infiltration	38	cfm	699	Btuh
Internal gain			3320	Btuh
Duct gain			6697	Btuh
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			19147	Btuh
Latent gain(ducts)			1418	Btuh
Latent gain(infiltration)			1195	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2000	Btuh
Total latent gain			4613	Btuh
TOTAL HEAT GAIN			23760	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *Abel Davis*

DATE: 1/20/25

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Albritton Residence

Project Title:

Norris Construction Albritton

Lake City, FL 32055

Building Type: User

1/20/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 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 0.21	Metal	0.33	N	30.0		12.2	366 Btuh
2	2, NFRC 0.21	Metal	0.33	N	30.0		12.2	366 Btuh
3	2, NFRC 0.21	Metal	0.33	E	16.0		12.2	195 Btuh
4	2, NFRC 0.21	Metal	0.33	S	60.0		12.2	733 Btuh
5	2, NFRC 0.21	Metal	0.33	S	30.0		12.2	366 Btuh
6	2, NFRC 0.21	Metal	0.33	W	60.0		12.2	733 Btuh
Window Total					226.0(sqft)			2759 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.074)	19.0/1.0	415		2.74	1136 Btuh
2	Frame - Wood	- Ext	(0.074)	19.0/1.0	110		2.74	301 Btuh
3	Frame - Wood	- Ext	(0.074)	19.0/1.0	296		2.74	811 Btuh
4	Frame - Wood	- Ext	(0.074)	19.0/1.0	315		2.74	863 Btuh
5	Frame - Wood	- Ext	(0.074)	19.0/1.0	200		2.74	548 Btuh
6	Frame - Wood	- Ext	(0.074)	19.0/1.0	354		2.74	969 Btuh
Wall Total					1690(sqft)			4628 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20		17.0	340 Btuh
2	Insulated - Exterior,	n	(0.460)		20		17.0	340 Btuh
3	Insulated - Exterior,	n	(0.460)		20		17.0	340 Btuh
4	Insulated - Exterior,	n	(0.460)		20		17.0	340 Btuh
5	Insulated - Exterior,	n	(0.460)		20		17.0	340 Btuh
Door Total					100(sqft)			1702Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.017)	30.0/30.0	1859		0.63	1178 Btuh
2	Sloped ce/D/Shing		(0.017)	30.0/30.0	539		0.63	341 Btuh
Ceiling Total					2398(sqft)			1519Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	0.0 ft(perim.)		43.7	0 Btuh
Floor Total					2398 sqft			0 Btuh
Envelope Subtotal:								10608 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	19184	1.00	50.1		2029 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.445)							5627 Btuh
All Zones	Sensible Subtotal All Zones							18265 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Albritton Residence
Lake City, FL 32055

Project Title:
Norris Construction Albritton
Building Type: User

1/20/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	18265 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	18265 Btuh

EQUIPMENT

1. Electric Heat Pump	#	60000 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)



Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Albritton Residence

Project Title:

Norris Construction Albritton

Lake City, FL 32055

1/20/2025

Reference City: Gainesville, FL (Defaults)

Temperature Difference: 17.0F(MJ8 99%)

Humidity difference: 47gr.

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	0.21, 0.33	B-L	No	N		1.5ft	2.0ft	30.0	0.0	30.0	8	8	230	Btuh	
2	2 NFRC	0.21, 0.33	B-L	No	N		9.2ft	2.0ft	30.0	0.0	30.0	8	8	230	Btuh	
3	2 NFRC	0.21, 0.33	B-L	No	E		1.5ft	2.0ft	16.0	0.0	16.0	8	19	301	Btuh	
4	2 NFRC	0.21, 0.33	B-L	No	S		1.5ft	2.0ft	60.0	60.0	0.0	8	9	460	Btuh	
5	2 NFRC	0.21, 0.33	B-L	No	S		7.0ft	2.0ft	30.0	30.0	0.0	8	9	230	Btuh	
6	2 NFRC	0.21, 0.33	B-L	No	W		1.5ft	2.0ft	60.0	0.0	60.0	8	19	1129	Btuh	
Window Total									226 (sqft)					2582 Btuh		
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load	
									Cav/Sheath							
1	Frame - Wood - Ext						0.07		19.0/1.0		415.0		1.4		596 Btuh	
2	Frame - Wood - Ext						0.07		19.0/1.0		110.0		1.4		158 Btuh	
3	Frame - Wood - Ext						0.07		19.0/1.0		296.0		1.4		425 Btuh	
4	Frame - Wood - Ext						0.07		19.0/1.0		315.0		1.4		452 Btuh	
5	Frame - Wood - Ext						0.07		19.0/1.0		200.0		1.4		287 Btuh	
6	Frame - Wood - Ext						0.07		19.0/1.0		354.0		1.4		508 Btuh	
Wall Total									1690 (sqft)					2426 Btuh		
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior								20.0		12.9		258 Btuh			
2	Insulated - Exterior								20.0		12.9		258 Btuh			
3	Insulated - Exterior								20.0		12.9		258 Btuh			
4	Insulated - Exterior								20.0		12.9		258 Btuh			
5	Insulated - Exterior								20.0		12.9		258 Btuh			
Door Total									100 (sqft)					1288 Btuh		
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load	
1	Vented Attic/DarkShingle						0.017		30.0/30.0		1859.0		0.89		1655 Btuh	
2	Vented Attic/DarkShingle						0.017		30.0/30.0		539.0		0.89		480 Btuh	
Ceiling Total									2398 (sqft)					2135 Btuh		
Floors	Type								R-Value		Size		HTM		Load	
1	Slab On Grade								0.0		2398 (ft-perimeter)		0.0		0 Btuh	
Floor Total									2398.0 (sqft)					0 Btuh		
Envelope Subtotal:														8431 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.12		19184		1		37.6		699 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							4		X 230		+		2400		3320 Btuh	
Sensible Envelope Load:														12450 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)								(DGM of 0.538)				6697 Btuh			
Sensible Load All Zones														19147 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Albritton Residence

Project Title:

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

Norris Construction Albritton

1/20/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12450 Btuh
	Sensible Duct Load	6697 Btuh
	Total Sensible Zone Loads	19147 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19147 Btuh
	Latent infiltration gain (for 47 gr. humidity difference)	1195 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1418 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	1200 Btuh
	Latent total gain	4613 Btuh
	TOTAL GAIN	23760 Btuh

EQUIPMENT

1. Central Unit	#	60000 Btuh
-----------------	---	------------

*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