

Residential System Sizing Calculation

Summary

Mary Johnson

Project Title:
Mary Johnson Res

Lake City, FL 32055

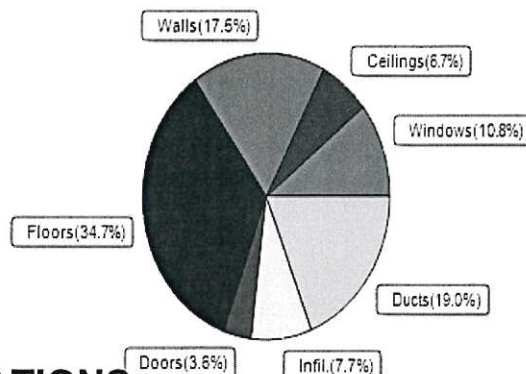
8/1/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)			
Winter design temperature(MJ8 99%/Cu)33 F		Summer design temperature(MJ8 99%/Cu)99 F	
Winter setpoint 70 F		Summer setpoint 75 F	
Winter temperature difference 37 F		Summer temperature difference 24 F	
Total heating load calculation	17633 Btuh	Total cooling load calculation	16793 Btuh
Submitted heating capacity % of calc Btuh		Submitted cooling capacity % of calc Btuh	
Total (Electric Heat Pump) 106.7 18809		Sensible (SHR = 0.75) 81.2 11533	
Heat Pump + Auxiliary(0.0kW) 106.7 18809		Latent 148.2 3844	
		Total (Electric Heat Pump) 91.6 15377	

WINTER CALCULATIONS

Winter Heating Load (for 1144 sqft)

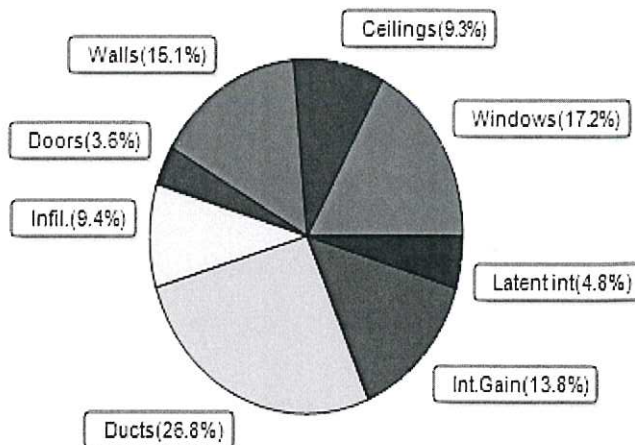
Load component		Load	
Window total	143 sqft	1898 Btuh	
Wall total	940 sqft	3086 Btuh	
Door total	38 sqft	643 Btuh	
Ceiling total	1258 sqft	1182 Btuh	
Floor total	1144 sqft	6112 Btuh	
Infiltration	33 cfm	1356 Btuh	
Duct loss		3356 Btuh	
Subtotal		17633 Btuh	
Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
TOTAL HEAT LOSS		17633 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1144 sqft)

Load component		Load	
Window total	143 sqft	2886 Btuh	
Wall total	940 sqft	2544 Btuh	
Door total	38 sqft	608 Btuh	
Ceiling total	1258 sqft	1565 Btuh	
Floor total		0 Btuh	
Infiltration	25 cfm	660 Btuh	
Internal gain		2320 Btuh	
Duct gain		3617 Btuh	
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		14200 Btuh	
Latent gain(ducts)		876 Btuh	
Latent gain(infiltration)		918 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		2594 Btuh	
TOTAL HEAT GAIN		16793 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE: 8 / 1 / 2024

W. C. M.

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Mary Johnson

Lake City, FL 32055

Project Title:
Mary Johnson Res
Building Type: User

8/1/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °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	1, NFRC 0.25	Vinyl	0.36	S	62.0		13.3	826 Btuh
2	1, NFRC 0.25	Vinyl	0.36	E	15.5		13.3	206 Btuh
3	1, NFRC 0.25	Vinyl	0.36	N	18.0		13.3	240 Btuh
4	1, NFRC 0.25	Vinyl	0.36	N	16.0		13.3	213 Btuh
5	1, NFRC 0.25	Vinyl	0.36	E	31.0		13.3	413 Btuh
Window Total					142.5(sqft)			1898 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	270		3.28	887 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	193		3.28	632 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	300		3.28	986 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	177		3.28	581 Btuh
Wall Total					940(sqft)			3086 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)		18		17.0	303 Btuh
Door Total					38(sqft)			643Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	1258		0.94	1182 Btuh
Ceiling Total					1258(sqft)			1182Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	140.0 ft(perim.)		43.7	6112 Btuh
Floor Total					1144 sqft			6112 Btuh
	Envelope Subtotal:							12921 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.22	9152	1.00	33.5		1356 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.235)	3356 Btuh
All Zones	Sensible Subtotal All Zones							17633 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Mary Johnson

Project Title:

Lake City, FL 32055

Mary Johnson Res
Building Type: User

8/1/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	17633 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	17633 Btuh

EQUIPMENT

1. Electric Heat Pump	#	18809 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

Mary Johnson

Project Title:
Mary Johnson Res

Lake City, FL 32055

8/1/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(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	1 NFRC	0.25, 0.36	No	No	S		1.5ft.	0.5ft.	62.0	62.0	0.0	14	16	862 Btuh	
2	1 NFRC	0.25, 0.36	No	No	E		1.0ft.	0.5ft.	15.5	1.0	14.5	14	33	489 Btuh	
3	1 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	18.0	0.0	18.0	14	14	250 Btuh	
4	1 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	16.0	0.0	16.0	14	14	222 Btuh	
5	1 NFRC	0.25, 0.36	No	No	E		1.0ft.	0.5ft.	31.0	2.0	29.0	14	33	978 Btuh	
	Excursion													85 Btuh	
	Window Total								143 (sqft)					2886 Btuh	
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load
									Cav/Sheath						
1	Frame - Wood - Ext						0.09		13.0/0.0		270.0		2.7		731 Btuh
2	Frame - Wood - Ext						0.09		13.0/0.0		192.5		2.7		521 Btuh
3	Frame - Wood - Ext						0.09		13.0/0.0		300.2		2.7		813 Btuh
4	Frame - Wood - Ext						0.09		13.0/0.0		177.0		2.7		479 Btuh
	Wall Total								940 (sqft)					2544 Btuh	
Doors	Type										Area (sqft)		HTM		Load
1	Insulated - Exterior										20.0		16.1		
2	Insulated - Exterior										17.8		16.1		
	Door Total										38 (sqft)				608 Btuh
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load
1	Vented AtticDarkShingle/RB						0.025		38.0/0.0		1258.4		1.24		
	Ceiling Total										1258 (sqft)				1565 Btuh
															1565 Btuh
Floors	Type								R-Value		Size		HTM		Load
1	Slab On Grade								0.0		1144 (ft-perimeter)		0.0		
	Floor Total										1144.0 (sqft)				0 Btuh
															0 Btuh
	Envelope Subtotal:													7603 Btuh	
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load
	Natural						0.16		9152		1		25.1		
Internal gain							Occupants		Btuh/occupant		Appliance				Load
							4		X 230		+		1400		2320 Btuh
	Sensible Envelope Load:													10582 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.342)													3617 Btuh	
	Sensible Load All Zones													14200 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Mary Johnson

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Mary Johnson Res

Lake City, FL 32055

8/1/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	10582 Btuh
	Sensible Duct Load	3617 Btuh
	Total Sensible Zone Loads	14200 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14200 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	918 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	876 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2594 Btuh
	TOTAL GAIN	16793 Btuh

EQUIPMENT

1. Central Unit	#	15377 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