

Residential System Sizing Calculation

Summary

Olivia Adams

Project Title:
Olivia Adams

Lake City, FL 32024

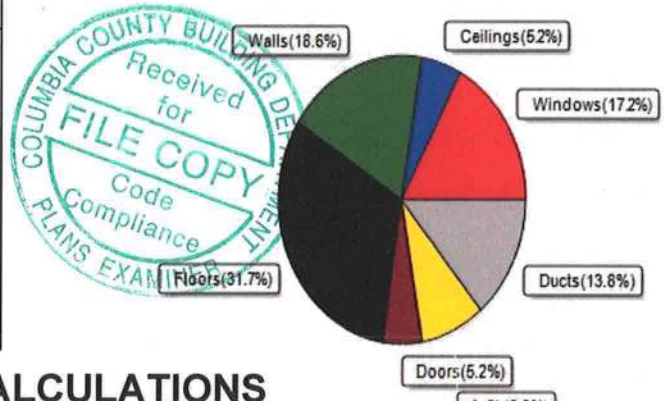
7/22/2024

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	15794 Btuh	Total cooling load calculation	16898 Btuh
Submitted heating capacity % of calc Btuh		Submitted cooling capacity % of calc Btuh	
Total (Electric Heat Pump) 107.8 17022		Sensible (SHR = 0.75) 80.0 11861	
Heat Pump + Auxiliary(0.0kW) 107.8 17022		Latent 190.4 3954	
		Total (Electric Heat Pump) 93.6 15815	

WINTER CALCULATIONS

Winter Heating Load (for 800 sqft)

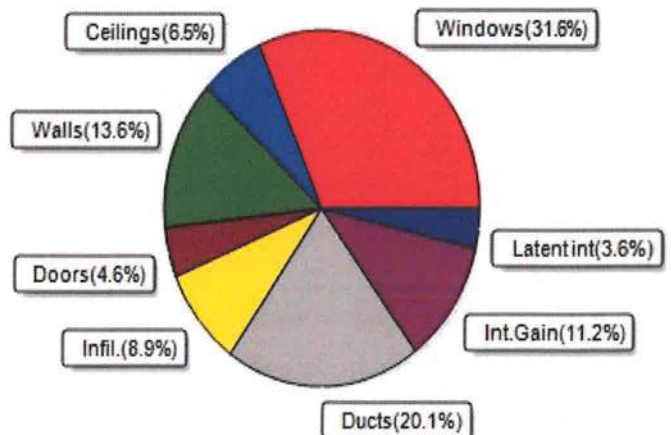
Load component		Load	
Window total	204 sqft	2717 Btuh	
Wall total	895 sqft	2938 Btuh	
Door total	48 sqft	817 Btuh	
Ceiling total	880 sqft	826 Btuh	
Floor total	800 sqft	5012 Btuh	
Infiltration	32 cfm	1296 Btuh	
Duct loss		2187 Btuh	
Subtotal		15794 Btuh	
Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
TOTAL HEAT LOSS		15794 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 800 sqft)

Load component		Load	
Window total	204 sqft	5347 Btuh	
Wall total	895 sqft	2297 Btuh	
Door total	48 sqft	773 Btuh	
Ceiling total	880 sqft	1094 Btuh	
Floor total		0 Btuh	
Infiltration	24 cfm	630 Btuh	
Internal gain		1890 Btuh	
Duct gain		2789 Btuh	
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		14821 Btuh	
Latent gain(ducts)		600 Btuh	
Latent gain(infiltration)		877 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		600 Btuh	
Total latent gain		2077 Btuh	
TOTAL HEAT GAIN		16898 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 7/22/2024

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Olivia Adams

Lake City, FL 32024

Project Title:
Olivia Adams
Building Type: User

7/22/2024

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	2, NFRC 0.25	Vinyl	0.36	NE	54.0		13.3	719 Btuh
2	2, NFRC 0.25	Vinyl	0.36	NE	24.0		13.3	320 Btuh
3	2, NFRC 0.25	Vinyl	0.36	NW	36.0		13.3	480 Btuh
4	2, NFRC 0.25	Vinyl	0.36	NW	6.0		13.3	80 Btuh
5	2, NFRC 0.25	Vinyl	0.36	SW	12.0		13.3	160 Btuh
6	2, NFRC 0.25	Metal	0.36	SW	72.0		13.3	959 Btuh
Window Total					204.0(sqft)			2717 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	231		3.28	760 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	198		3.28	650 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	181		3.28	596 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	68		3.28	223 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	216		3.28	709 Btuh
Wall Total					895(sqft)			2938 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		24		17.0	408 Btuh
2	Insulated - Garage, n		(0.460)		24		17.0	408 Btuh
Door Total					48(sqft)			817Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	880		0.94	826 Btuh
Ceiling Total					880(sqft)			826Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	114.8 ft(perim.)		43.7	5012 Btuh
Floor Total					800 sqft			5012 Btuh
Envelope Subtotal:								12311 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.24	8000	1.00	32.0		1296 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.161)	2187 Btuh
All Zones	Sensible Subtotal All Zones							15794 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Olivia Adams

Lake City, FL 32024

Project Title:
Olivia Adams
Building Type: User

7/22/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	15794 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	15794 Btuh

EQUIPMENT

1. Electric Heat Pump	#	17022 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

Olivia Adams

Project Title:
Olivia Adams

Lake City, FL 32024

7/22/2024

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	2 NFRC	0.25, 0.36	No	No	NE	1.5ft.	1.0ft.	54.0	0.0	54.0	14	25	1374	Btuh		
2	2 NFRC	0.25, 0.36	No	No	NE	1.5ft.	1.0ft.	24.0	0.0	24.0	14	25	611	Btuh		
3	2 NFRC	0.25, 0.36	No	No	NW	1.5ft.	1.0ft.	36.0	0.0	36.0	14	25	916	Btuh		
4	2 NFRC	0.25, 0.36	No	No	NW	1.5ft.	1.0ft.	6.0	0.0	6.0	14	25	153	Btuh		
5	2 NFRC	0.25, 0.36	No	No	SW	1.5ft.	1.0ft.	12.0	4.4	7.6	14	27	263	Btuh		
6	2 NFRC	0.25, 0.36	No	No	SW	11.5f	1.0ft.	72.0	72.0	0.0	14	27	1001	Btuh		
	Excursion												1031	Btuh		
	Window Total							204 (sqft)						5347	Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	231.3		2.7		626 Btuh			
2	Frame - Wood - Ext						0.09	13.0/0.0	198.0		2.7		536 Btuh			
3	Frame - Wood - Ext						0.09	13.0/0.0	181.3		2.7		491 Btuh			
4	Frame - Wood - Ext						0.09	13.0/0.0	68.0		2.7		184 Btuh			
5	Frame - Wood - Adj						0.09	13.0/0.0	216.0		2.1		460 Btuh			
	Wall Total							895 (sqft)					2297 Btuh			
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior								24.0		16.1		386 Btuh			
2	Insulated - Garage								24.0		16.1		386 Btuh			
	Door Total									48 (sqft)				773 Btuh		
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
1	Vented Attic/DarkShingle/RB						0.025	38.0/0.0	880.0		1.24		1094 Btuh			
	Ceiling Total									880 (sqft)				1094 Btuh		
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		800 (ft-perimeter)		0.0		0 Btuh			
	Floor Total									800.0 (sqft)				0 Btuh		
	Envelope Subtotal:												9512 Btuh			
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.18		8000		1		24.0		630 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							3		X 230		+		1200		1890 Btuh	
	Sensible Envelope Load:												12032 Btuh			
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)								(DGM of 0.232)				2789 Btuh			
	Sensible Load All Zones												14821 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Olivia Adams

Project Title:
Olivia Adams

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32024

7/22/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12032 Btuh
	Sensible Duct Load	2789 Btuh
	Total Sensible Zone Loads	14821 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14821 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	877 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	600 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2077 Btuh
	TOTAL GAIN	16898 Btuh

EQUIPMENT

1. Central Unit	#	15815 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