

Residential System Sizing Calculation

Summary

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson

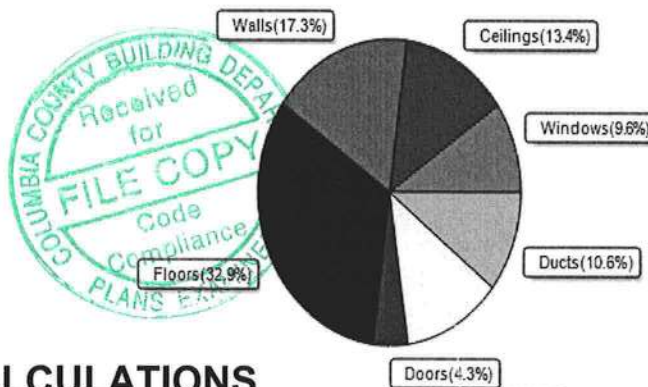
2020-06-16

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%)	32 F	Summer design temperature(MJ8 99%)	99 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	38 F	Summer temperature difference	24 F
Total heating load calculation	24110 Btuh	Total cooling load calculation	22588 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	112.0 27000	Sensible (SHR = 0.75)	109.7 20250
Heat Pump + Auxiliary(0.0kW)	112.0 27000	Latent	163.4 6750
		Total (Electric Heat Pump)	119.5 27000

WINTER CALCULATIONS

Winter Heating Load (for 1724 sqft)

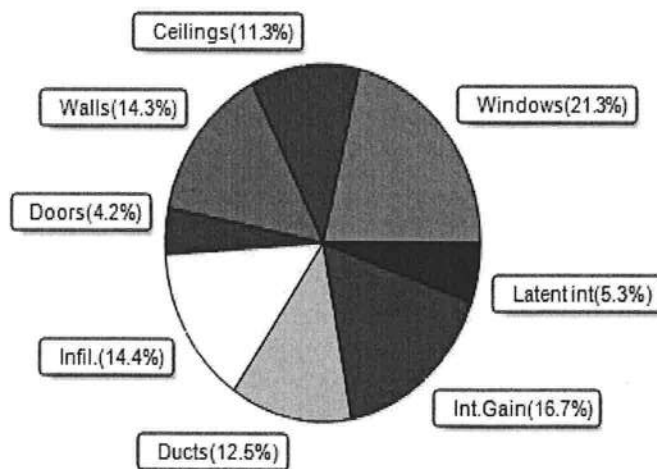
Load component		Load	
Window total	204 sqft	2326	Btuh
Wall total	1237 sqft	4171	Btuh
Door total	68 sqft	1030	Btuh
Ceiling total	1984 sqft	3222	Btuh
Floor total	1724 sqft	7937	Btuh
Infiltration	69 cfm	2865	Btuh
Duct loss		2559	Btuh
Subtotal		24110	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		24110	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1724 sqft)

Load component		Load	
Window total	204 sqft	4808	Btuh
Wall total	1237 sqft	3235	Btuh
Door total	68 sqft	949	Btuh
Ceiling total	1984 sqft	2544	Btuh
Floor total		0	Btuh
Infiltration	52 cfm	1357	Btuh
Internal gain		3780	Btuh
Duct gain		1786	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		18457	Btuh
Latent gain(ducts)		1044	Btuh
Latent gain(infiltration)		1887	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		4131	Btuh
TOTAL HEAT GAIN		22588	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2020-06-16

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson
Building Type: User

2020-06-16

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 38.0 F (MJ8 99%)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.20	Metal	0.30	E	30.0		11.4	342 Btuh
2	2, NFRC 0.20	Metal	0.30	E	30.0		11.4	342 Btuh
3	2, NFRC 0.20	Metal	0.30	E	33.3		11.4	380 Btuh
4	2, NFRC 0.20	Metal	0.30	E	15.0		11.4	171 Btuh
5	2, NFRC 0.20	Metal	0.30	S	4.0		11.4	46 Btuh
6	2, NFRC 0.20	Metal	0.30	W	15.0		11.4	171 Btuh
7	2, NFRC 0.20	Metal	0.30	W	6.7		11.4	76 Btuh
8	2, NFRC 0.20	Metal	0.30	W	6.0		11.4	68 Btuh
9	2, NFRC 0.20	Metal	0.30	W	30.0		11.4	342 Btuh
10	2, NFRC 0.20	Metal	0.30	W	12.0		11.4	137 Btuh
11	2, NFRC 0.20	Metal	0.30	N	2.0		11.4	23 Btuh
12	2, NFRC 0.20	Metal	0.30	N	20.0		11.4	228 Btuh
Window Total					204.0(sqft)			2326 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.37	277 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	157		3.37	528 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	86		3.37	289 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	283		3.37	956 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	86		3.37	289 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.37	54 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	21		3.37	70 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	20		3.37	67 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.37	218 Btuh
10	Frame - Wood	- Adj	(0.089)	13.0/0.0	49		3.37	166 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	147		3.37	495 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	226		3.37	762 Btuh
Wall Total					1237(sqft)			4171 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		15.2	304 Btuh
2	Insulated - Exterior, n		(0.400)		13		15.2	203 Btuh
3	Insulated - Garage, n		(0.400)		18		15.2	270 Btuh
4	Insulated - Garage, n		(0.400)		17		15.2	253 Btuh
Door Total					68(sqft)			1030Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Unvent Attic/L/Shing		(0.043)	0.5/22.0	1984		1.6	3222 Btuh
Ceiling Total					1984(sqft)			3222Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	177.0 ft(perim.)		44.8	7937 Btuh
Floor Total					1724 sqft			7937 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson
Building Type: User

2020-06-16

	Envelope Subtotal:						18686 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.26	Volume(cuft) 15861	Wall Ratio 1.00	CFM= 68.9		2865 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.119)						2559 Btuh
All Zones	Sensible Subtotal All Zones						24110 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	24110 Btuh 0 Btuh 24110 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27000 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

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson

2020-06-16

Reference City: Gainesville, FL

Temperature Difference: 24.0F(MJ8 99%)

Humidity difference: 54gr.

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	0.20, 0.30	No	No	E		1.5ft.	2.5ft.	30.0	0.0	30.0	11	26	794 Btuh
2	2 NFRC	0.20, 0.30	No	No	E		1.5ft.	2.5ft.	30.0	0.0	30.0	11	26	794 Btuh
3	2 NFRC	0.20, 0.30	No	No	E		1.5ft.	2.5ft.	33.3	0.0	33.3	11	26	883 Btuh
4	2 NFRC	0.20, 0.30	No	No	E		1.5ft.	2.5ft.	15.0	0.0	15.0	11	26	397 Btuh
5	2 NFRC	0.20, 0.30	No	No	S		1.5ft.	1.0ft.	4.0	4.0	0.0	11	13	46 Btuh
6	2 NFRC	0.20, 0.30	No	No	W		1.5ft.	2.5ft.	15.0	0.0	15.0	11	26	397 Btuh
7	2 NFRC	0.20, 0.30	No	No	W		6.0ft.	2.0ft.	6.7	3.0	3.7	11	26	132 Btuh
8	2 NFRC	0.20, 0.30	No	No	W		6.0ft.	0.5ft.	6.0	6.0	0.0	11	26	68 Btuh
9	2 NFRC	0.20, 0.30	No	No	W		1.5ft.	2.5ft.	30.0	0.0	30.0	11	26	794 Btuh
10	2 NFRC	0.20, 0.30	No	No	W		1.5ft.	0.5ft.	12.0	4.5	7.5	11	26	250 Btuh
11	2 NFRC	0.20, 0.30	No	No	N		1.5ft.	1.0ft.	2.0	0.0	2.0	11	11	23 Btuh
12	2 NFRC	0.20, 0.30	No	No	N		1.5ft.	1.0ft.	20.0	0.0	20.0	11	11	228 Btuh
Window Total									204 (sqft)					4808 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
				Cav/Sheath										
1	Frame - Wood - Ext		0.09	13.0/0.0			82.0		2.7		222 Btuh			
2	Frame - Wood - Ext		0.09	13.0/0.0			156.7		2.7		424 Btuh			
3	Frame - Wood - Ext		0.09	13.0/0.0			85.7		2.7		232 Btuh			
4	Frame - Wood - Ext		0.09	13.0/0.0			283.3		2.7		767 Btuh			
5	Frame - Wood - Ext		0.09	13.0/0.0			85.7		2.7		232 Btuh			
6	Frame - Wood - Ext		0.09	13.0/0.0			16.0		2.7		43 Btuh			
7	Frame - Wood - Ext		0.09	13.0/0.0			20.7		2.7		56 Btuh			
8	Frame - Wood - Ext		0.09	13.0/0.0			20.0		2.7		54 Btuh			
9	Frame - Wood - Ext		0.09	13.0/0.0			64.7		2.7		175 Btuh			
10	Frame - Wood - Adj		0.09	13.0/0.0			49.2		2.1		105 Btuh			
11	Frame - Wood - Adj		0.09	13.0/0.0			146.9		2.1		313 Btuh			
12	Frame - Wood - Ext		0.09	13.0/0.0			226.0		2.7		612 Btuh			
Wall Total							1237 (sqft)					3235 Btuh		
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load				
1	Insulated - Exterior						20.0		14.0		280 Btuh			
2	Insulated - Exterior						13.3		14.0		187 Btuh			
3	Insulated - Garage						17.8		14.0		249 Btuh			
4	Insulated - Garage						16.7		14.0		233 Btuh			
Door Total							68 (sqft)					949 Btuh		
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Unvented Attic/Light/Shingle		0.043	0.5/22.0			1984.0		1.28		2544 Btuh			
Ceiling Total							1984 (sqft)					2544 Btuh		
Floors	Type	U-Value		R-Value		Size		HTM		Load				
1	Slab On Grade			0.0			1724 (ft-perimeter)		0.0		0 Btuh			
Floor Total							1724.0 (sqft)					0 Btuh		
Envelope Subtotal:											11535 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson

Climate:FL_GAINESVILLE_REGIONAL_A

2020-06-16

Infiltration	Type Natural	Average ACH 0.20	Volume(cuft) 15861	Wall Ratio 1	CFM= 51.6	Load 1357 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	2400	Load 3780 Btuh
					Sensible Envelope Load:	16672 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.107)	1786 Btuh
					Sensible Load All Zones	18457 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Pamela Jackson
1155 Scrubtown Road
Fort White, FL

Project Title:
200334 Jackson

Climate: FL_GAINESVILLE_REGIONAL_A

2020-06-16

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16672 Btuh
	Sensible Duct Load	1786 Btuh
	Total Sensible Zone Loads	18457 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18457 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	1887 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1044 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4131 Btuh
	TOTAL GAIN	22588 Btuh

EQUIPMENT

1. Central Unit	#	27000 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