

Residential System Sizing Calculation

Summary

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title:
Jones_Freeman Res

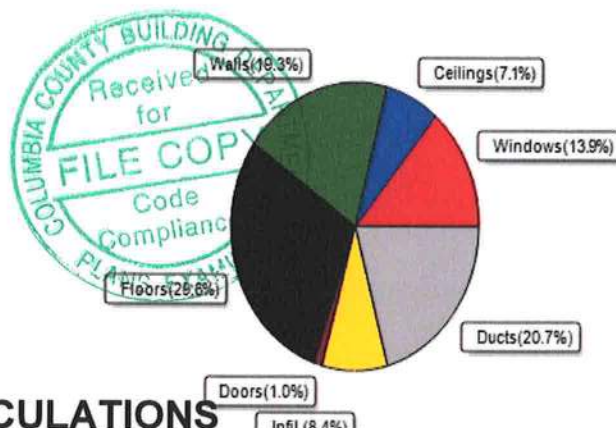
6/8/2021

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			43366	Btuh	
Total cooling load calculation			31934	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	43366	Sensible (SHR = 0.70)	85.6	22228
Heat Pump + Auxiliary(0.0kW)	100.0	43366	Latent	159.8	9526
			Total (Electric Heat Pump)	99.4	31755

WINTER CALCULATIONS

Winter Heating Load (for 2900 sqft)

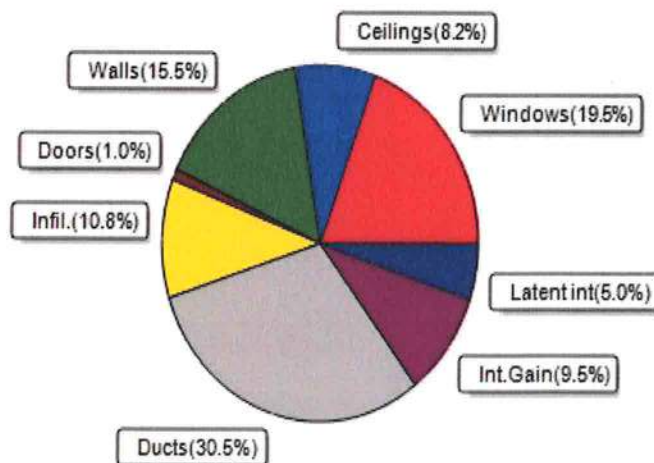
Load component		Load	
Window total	418 sqft	6019	Btuh
Wall total	2358 sqft	8372	Btuh
Door total	24 sqft	442	Btuh
Ceiling total	3045 sqft	3091	Btuh
Floor total	2900 sqft	12823	Btuh
Infiltration	83 cfm	3628	Btuh
Duct loss		8992	Btuh
Subtotal		43366	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		43366	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2900 sqft)

Load component		Load	
Window total	418 sqft	6220	Btuh
Wall total	2358 sqft	4947	Btuh
Door total	24 sqft	331	Btuh
Ceiling total	3045 sqft	2628	Btuh
Floor total		0	Btuh
Infiltration	62 cfm	1292	Btuh
Internal gain		3040	Btuh
Duct gain		7514	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		25972	Btuh
Latent gain(ducts)		2217	Btuh
Latent gain(infiltration)		2144	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		5961	Btuh
TOTAL HEAT GAIN		31934	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

6/8/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title:
Jones_Freeman Res
Building Type: User

6/8/2021

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Vinyl	0.36	S	18.0		14.4	259 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	72.0		14.4	1037 Btuh
3	2, NFRC 0.25	TIM	0.36	S	48.0		14.4	691 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	12.0		14.4	173 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	8.0		14.4	115 Btuh
6	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	E	16.0		14.4	230 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	24.0		14.4	346 Btuh
9	2, NFRC 0.25	TIM	0.36	W	48.0		14.4	691 Btuh
10	2, NFRC 0.25	TIM	0.36	N	144.0		14.4	2074 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	18.0		14.4	259 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
Window Total					418.0(sqft)			6019 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	102		3.55	362 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	193		3.55	686 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	230 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	467		3.55	1657 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	209		3.55	743 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	280		3.55	994 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	239		3.55	850 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	52		3.55	185 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	216		3.55	767 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	403		3.55	1430 Btuh
Wall Total					2358(sqft)			8372 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		24		18.4	442 Btuh
Door Total					24(sqft)			442Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	3045		1.0	3091 Btuh
Ceiling Total					3045(sqft)			3091Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	271.7 ft(perim.)		47.2	12823 Btuh
Floor Total					2900 sqft			12823 Btuh
Envelope Subtotal:								30747 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	29000	1.00	82.8		3628 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title:
Jones_Freeman Res
Building Type: User

6/8/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.262)	8992 Btuh
All Zones	Sensible Subtotal All Zones	43366 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	43366 Btuh 0 Btuh 43366 Btuh
---------------------------	--	------------------------------------

EQUIPMENT

1. Electric Heat Pump	#	43366 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

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title:
Jones_Freeman Res

6/8/2021

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

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	S		1.5ft.	1.0ft.	18.0	18.0	0.0	12	14	218	Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	1.0ft.	72.0	72.0	0.0	12	14	871	Btuh	
3	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	1.0ft.	48.0	48.0	0.0	12	14	581	Btuh	
4	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	12.0	12.0	0.0	12	14	145	Btuh	
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	8.0	1.0	7.0	12	31	229	Btuh	
6	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh	
7	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	16.0	1.0	15.0	12	31	477	Btuh	
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	24.0	0.0	24.0	12	12	290	Btuh	
9	2 NFRC	0.25, 0.36	No	No	W		6.5ft.	1.0ft.	48.0	26.4	21.6	12	31	988	Btuh	
10	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	144.0	0.0	144.0	12	12	1742	Btuh	
11	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	18.0	0.0	18.0	12	12	218	Btuh	
12	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
	Excursion													179	Btuh	
	Window Total								418 (sqft)					6220 Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	102.0		2.3		231 Btuh			
2	Frame - Wood - Ext						0.09	13.0/0.0	193.3		2.3		438 Btuh			
3	Frame - Wood - Ext						0.09	13.0/0.0	64.7		2.3		146 Btuh			
4	Frame - Wood - Adj						0.09	13.0/0.0	466.7		1.7		787 Btuh			
5	Frame - Wood - Adj						0.09	13.0/0.0	209.3		1.7		353 Btuh			
6	Frame - Wood - Ext						0.09	13.0/0.0	280.0		2.3		634 Btuh			
7	Frame - Wood - Ext						0.09	13.0/0.0	239.3		2.3		542 Btuh			
8	Frame - Wood - Ext						0.09	13.0/0.0	52.0		2.3		118 Btuh			
9	Frame - Wood - Ext						0.09	13.0/0.0	216.0		2.3		489 Btuh			
10	Frame - Wood - Ext						0.09	13.0/0.0	132.0		2.3		299 Btuh			
11	Frame - Wood - Ext						0.09	13.0/0.0	402.7		2.3		911 Btuh			
	Wall Total								2358 (sqft)				4947 Btuh			
Doors	Type								Area (sqft)		HTM		Load			
	1	Insulated - Garage								24.0		13.8		331 Btuh		
	Door Total								24 (sqft)				331 Btuh			
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
	1	Vented AtticLight/Shingle/RB						0.025	38.0/0.0	3045.0		0.86		2628 Btuh		
	Ceiling Total								3045 (sqft)				2628 Btuh			
Floors	Type								R-Value		Size		HTM		Load	
	1	Slab On Grade								0.0		2900 (ft-perimeter)		0.0		0 Btuh
	Floor Total								2900.0 (sqft)				0 Btuh			
	Envelope Subtotal:													14126 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Jones_Freeman Res

6/8/2021

Infiltration	Type Natural	Average ACH 0.13	Volume(cuft) 29000	Wall Ratio 1	CFM= 62.1	Load 1292 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
					Sensible Envelope Load:	18458 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.407)	7514 Btuh
					Sensible Load All Zones	25972 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jones / Freeman
587 Pinehurst Drive
Lake City, FL 32055

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Jones_Freeman Res

6/8/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18458 Btuh
	Sensible Duct Load	7514 Btuh
	Total Sensible Zone Loads	25972 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	25972 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2144 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	2217 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5961 Btuh
	TOTAL GAIN	31934 Btuh

EQUIPMENT

1. Central Unit	#	31755 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