

Residential System Sizing Calculation

Summary

Project Title:
Rose Point Spec

, FL

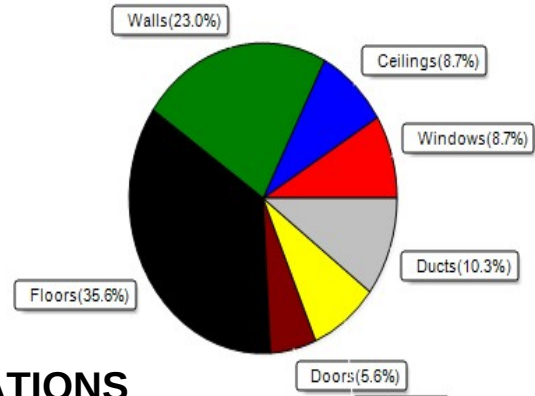
9/23/2020

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	22969 Btuh	Total cooling load calculation	17856 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	130.6 30000	Sensible (SHR = 0.85)	167.1 25500
Heat Pump + Auxiliary(0.0kW)	130.6 30000	Latent	173.6 4500
		Total (Electric Heat Pump)	168.0 30000

WINTER CALCULATIONS

Winter Heating Load (for 1570 sqft)

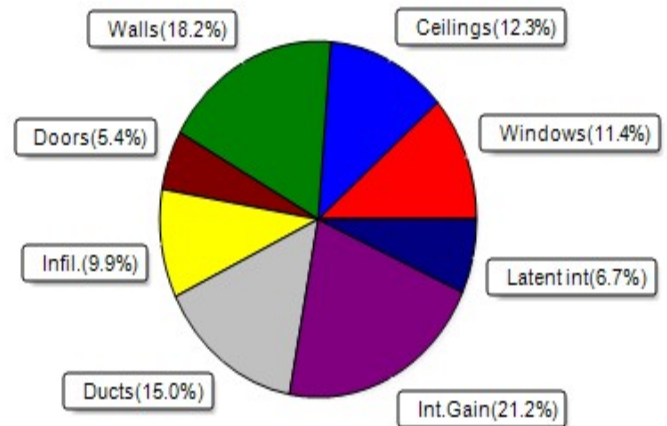
Load component	Load
Window total 152 sqft	2006 Btuh
Wall total 1489 sqft	5285 Btuh
Door total 80 sqft	1280 Btuh
Ceiling total 1570 sqft	2000 Btuh
Floor total 1570 sqft	8166 Btuh
Infiltration 42 cfm	1861 Btuh
Duct loss	2371 Btuh
Subtotal	22969 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	22969 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1570 sqft)

Load component	Load
Window total 152 sqft	2038 Btuh
Wall total 1489 sqft	3246 Btuh
Door total 80 sqft	960 Btuh
Ceiling total 1570 sqft	2200 Btuh
Floor total	0 Btuh
Infiltration 32 cfm	663 Btuh
Internal gain	3780 Btuh
Duct gain	2378 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	15264 Btuh
Latent gain(ducts)	292 Btuh
Latent gain(infiltration)	1100 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2592 Btuh
TOTAL HEAT GAIN	17856 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

9-21-20

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Rose Point Spec

, FL

9/23/2020

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	0.22, 0.33	No	No	N		1.5ft	1.3ft	30.0	0.0	30.0	11	11	327	Btuh		
2	2 NFRC	0.22, 0.33	No	No	N		9.5ft	1.3ft	9.0	0.0	9.0	11	11	98	Btuh		
3	2 NFRC	0.22, 0.33	No	No	N		1.5ft	1.3ft	30.0	0.0	30.0	11	11	327	Btuh		
4	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	15.0	0.0	15.0	11	27	412	Btuh		
5	2 NFRC	0.22, 0.33	No	No	N		1.5ft	1.3ft	15.0	0.0	15.0	11	11	163	Btuh		
6	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	4.0	0.0	4.0	11	27	110	Btuh		
7	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh		
8	2 NFRC	0.22, 0.33	No	No	S		8.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh		
9	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh		
10	2 NFRC	0.22, 0.33	No	No	W		1.5ft	1.3ft	4.0	0.0	4.0	11	27	110	Btuh		
	Window Total								152 (sqft)					2038 Btuh			
Walls	Type					U-Value	R-Value		Area(sqft)			HTM		Load			
							Cav/Sheath										
1	Frame - Wood - Ext						0.09	13.0/0.0		128.3			2.3		290	Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0		82.5			2.3		187	Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0		32.0			2.3		72	Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0		66.0			2.3		149	Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0		57.0			2.3		129	Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0		89.3			2.3		202	Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0		291.5			2.3		660	Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0		92.3			2.3		209	Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0		45.0			2.3		102	Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0		62.5			2.3		141	Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.0		45.0			2.3		102	Btuh	
12	Frame - Wood - Ext						0.09	13.0/0.0		41.3			2.3		93	Btuh	
13	Frame - Wood - Ext						0.09	13.0/0.0		242.0			2.3		548	Btuh	
14	Frame - Wood - Adj						0.09	13.0/0.0		214.0			1.7		361	Btuh	
	Wall Total								1489 (sqft)					3246 Btuh			
Doors	Type							Area (sqft)			HTM		Load				
1	Insulated - Exterior								40.0			12.0		480	Btuh		
2	Insulated - Exterior								20.0			12.0		240	Btuh		
3	Insulated - Garage								20.0			12.0		240	Btuh		
	Door Total								80 (sqft)					960 Btuh			
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)			HTM		Load			
1	Vented Attic/Light/Shingle						0.032	30.0/0.0		1570.0			1.40		2200	Btuh	
	Ceiling Total								1570 (sqft)					2200 Btuh			
Floors	Type							R-Value		Size			HTM		Load		
1	Slab On Grade								0.0		1570 (ft-perimeter)			0.0		0	Btuh
	Floor Total								1570.0 (sqft)					0 Btuh			
	Envelope Subtotal:													8443 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Rose Point Spec

, FL

9/23/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 14130	Wall Ratio 1	CFM= 31.9	Load 663 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	2400	Load 3780 Btuh
	Sensible Envelope Load:					12886 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.185)					2378 Btuh
	Sensible Load All Zones					15264 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Rose Point Spec

, FL

9/23/2020

WHOLE HOUSE TOTALS		
Whole House Totals for Cooling	Sensible Envelope Load All Zones	12886 Btuh
	Sensible Duct Load	2378 Btuh
	Total Sensible Zone Loads	15264 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15264 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1100 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	292 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2592 Btuh
	TOTAL GAIN	17856 Btuh

EQUIPMENT		
1. Central Unit	#	30000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Rose Point Spec
Building Type: User

, FL

9/23/2020

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 0.22	Vinyl	0.33	N	30.0		13.2	396 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	9.0		13.2	119 Btuh
3	2, NFRC 0.22	Vinyl	0.33	N	30.0		13.2	396 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	15.0		13.2	198 Btuh
5	2, NFRC 0.22	Vinyl	0.33	N	15.0		13.2	198 Btuh
6	2, NFRC 0.22	Vinyl	0.33	E	4.0		13.2	53 Btuh
7	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
8	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
9	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
10	2, NFRC 0.22	Vinyl	0.33	W	4.0		13.2	53 Btuh
	Window Total				152.0(sqft)			2006 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	455 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	83		3.55	293 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	114 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	66		3.55	234 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	57		3.55	202 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	89		3.55	317 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	292		3.55	1035 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	328 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	222 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	41		3.55	146 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	242		3.55	859 Btuh
14	Frame - Wood	- Adj	(0.089)	13.0/0.0	214		3.55	760 Btuh
	Wall Total				1489(sqft)			5285 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Garage, n		(0.400)		20		16.0	320 Btuh
	Door Total				80(sqft)			1280Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1570		1.3	2000 Btuh
	Ceiling Total				1570(sqft)			2000Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	173.0 ft(perim.)		47.2	8166 Btuh
	Floor Total				1570 sqft			8166 Btuh
	Envelope Subtotal:							18737 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Rose Point Spec
Building Type: User

9/23/2020

Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 14130	Wall Ratio 1.00	CFM= 42.5	1861 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.115)	2371 Btuh
All Zones	Sensible Subtotal All Zones					22969 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	22969 Btuh 0 Btuh 22969 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	30000 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