Residential System Sizing Calculation

Summary

Project Title:
Rose Point Spec

, FL

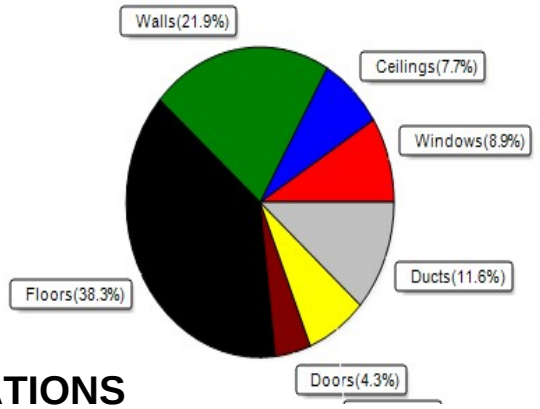
6/25/2020

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	**21306**	**Btuh**	**Total cooling load calculation**	**15483**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	140.8	30000	Sensible (SHR = 0.85)	195.1	25500
Heat Pump + Auxiliary(0.0kW)	140.8	30000	Latent	186.5	4500
			Total (Electric Heat Pump)	193.8	30000

WINTER CALCULATIONS

Winter Heating Load (for 1293 sqft)

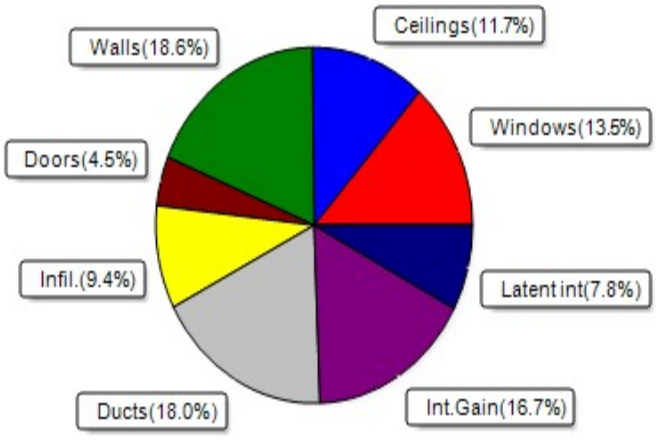
Load component			Load	
Window total	144	sqft	1905	Btuh
Wall total	1354	sqft	4670	Btuh
Door total	58	sqft	924	Btuh
Ceiling total	1293	sqft	1647	Btuh
Floor total	1293	sqft	8166	Btuh
Infiltration	35	cfm	1532	Btuh
Duct loss			2461	Btuh
Subtotal			**21306**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**21306**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1293 sqft)

Load component			Load	
Window total	144	sqft	2087	Btuh
Wall total	1354	sqft	2876	Btuh
Door total	58	sqft	693	Btuh
Ceiling total	1293	sqft	1812	Btuh
Floor total			0	Btuh
Infiltration	26	cfm	546	Btuh
Internal gain			2580	Btuh
Duct gain			2475	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**13069**	**Btuh**
Latent gain(ducts)			308	Btuh
Latent gain(infiltration)			906	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**2414**	**Btuh**
TOTAL HEAT GAIN			**15483**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 6-25-20

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Rose Point Spec

, FL

6/25/2020

Reference City: Gainesville, FL Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

Component Loads for Whole House

Window	Type* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0.22, 0.33		No	No	N	1.5ft	1.3ft	45.0	0.0	45.0	11	11	490 Btuh
2	2 NFRC	0.22, 0.33		No	No	N	7.0ft	1.3ft	30.0	0.0	30.0	11	11	327 Btuh
3	2 NFRC	0.22, 0.33		No	No	W	1.5ft	1.3ft	20.0	0.0	20.0	11	27	550 Btuh
4	2 NFRC	0.22, 0.33		No	No	W	1.5ft	1.3ft	6.0	0.0	6.0	11	27	165 Btuh
5	2 NFRC	0.22, 0.33		No	No	S	9.5ft	1.3ft	13.3	13.3	0.0	11	13	145 Btuh
6	2 NFRC	0.22, 0.33		No	No	S	1.5ft	1.3ft	30.0	30.0	0.0	11	13	327 Btuh
	Excursion													83 Btuh
	Window Total								144 (sqft)					2087 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.09	13.0/0.6	238.5	2.2	524 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.6	49.5	2.2	109 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.6	80.5	2.2	177 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.6	23.5	2.2	52 Btuh
5	Frame - Wood - Ext	0.09	13.0/0.6	258.0	2.2	567 Btuh
6	Frame - Wood - Ext	0.09	13.0/0.6	25.2	2.2	55 Btuh
7	Frame - Wood - Ext	0.09	13.0/0.6	52.5	2.2	115 Btuh
8	Frame - Wood - Ext	0.09	13.0/0.6	75.0	2.2	165 Btuh
9	Frame - Wood - Ext	0.09	13.0/0.6	99.0	2.2	218 Btuh
10	Frame - Wood - Ext	0.09	13.0/0.6	54.0	2.2	119 Btuh
11	Frame - Wood - Ext	0.09	13.0/0.6	218.3	2.2	480 Btuh
12	Frame - Wood - Adj	0.09	13.0/0.6	180.2	1.6	295 Btuh
	Wall Total			1354 (sqft)		2876 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20.0	12.0	240 Btuh
2	Insulated - Exterior	20.0	12.0	240 Btuh
3	Insulated - Garage	17.8	12.0	213 Btuh
	Door Total	58 (sqft)		693 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/Light/Shingle	0.032	30.0/0.0	1293.0	1.40	1812 Btuh
	Ceiling Total			1293 (sqft)		1812 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1293 (ft-perimeter)	0.0	0 Btuh
	Floor Total		1293.0 (sqft)		0 Btuh

	Envelope Subtotal:	7468 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Rose Point Spec

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

6/25/2020

Infiltration	Type		Average ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural		0.14		11637		1		26.2	546 Btuh
Internal gain			Occupants		Btuh/occupant				Appliance	Load
			6	X	230	+			1200	2580 Btuh
								Sensible Envelope Load:		10594 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)						(DGM of 0.234)			2475 Btuh
								Sensible Load All Zones		**13069 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Rose Point Spec

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

6/25/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**10594**	**Btuh**
	Sensible Duct Load	2475	Btuh
	Total Sensible Zone Loads	**13069**	**Btuh**
	Sensible ventilation	0	Btuh
	Blower	0	Btuh
	Total sensible gain	**13069**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	906	Btuh
	Latent ventilation gain	0	Btuh
	Latent duct gain	308	Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200	Btuh
	Latent other gain	0	Btuh
	Latent total gain	**2414**	**Btuh**
	TOTAL GAIN	**15483**	**Btuh**

EQUIPMENT

1. Central Unit	#	30000 Btuh

*Key: Window types (Panes - 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
, FL Building Type: User

6/25/2020

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	45.0	13.2	594 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	30.0	13.2	396 Btuh
3	2, NFRC 0.22	Vinyl	0.33	W	20.0	13.2	264 Btuh
4	2, NFRC 0.22	Vinyl	0.33	W	6.0	13.2	79 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	13.3	13.2	176 Btuh
6	2, NFRC 0.22	Vinyl	0.33	S	30.0	13.2	396 Btuh
	Window Total				144.3(sqft)		1905 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	239	3.45	822 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	50	3.45	171 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	81	3.45	278 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	24	3.45	81 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	258	3.45	890 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	25	3.45	87 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	53	3.45	181 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	75	3.45	259 Btuh
9	Frame - Wood	- Ext	(0.086)	13.0/0.6	99	3.45	341 Btuh
10	Frame - Wood	- Ext	(0.086)	13.0/0.6	54	3.45	186 Btuh
11	Frame - Wood	- Ext	(0.086)	13.0/0.6	218	3.45	753 Btuh
12	Frame - Wood	- Adj	(0.086)	13.0/0.6	180	3.45	621 Btuh
	Wall Total				1354(sqft)		4670 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)	20	16.0	320 Btuh
2	Insulated - Exterior,	n	(0.400)	20	16.0	320 Btuh
3	Insulated - Garage,	n	(0.400)	18	16.0	284 Btuh
	Door Total			58(sqft)		924Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/L/Shing	(0.032)	30.0/0.0	1293	1.3	1647 Btuh
	Ceiling Total			1293(sqft)		1647Btuh

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			1293 sqft		8166 Btuh

	Envelope Subtotal:	17312 Btuh

Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.18	11637	1.00	35.0	1532 Btuh

Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.131)	2461 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Rose Point Spec
, FL Building Type: User

6/25/2020

All Zones	**Sensible Subtotal All Zones**	**21306 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	21306 Btuh 0 Btuh 21306 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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