

Residential System Sizing Calculation

Summary

N/A
Rose Point Place
Lake City, FL 32024-

Project Title:
Model 1302

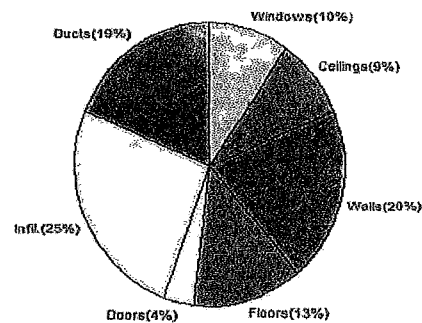
5/1/2014

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(54gr.)			
Winter design temperature(MJ8 99%)	33 F	Summer design temperature(MJ8 99%)	92 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	17 F
Total heating load calculation	19144 Btuh	Total cooling load calculation	24646 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	141.6 27100	Sensible (SHR = 0.75)	105.6 20325
Heat Pump + Auxiliary(0.0kW)	141.6 27100	Latent	125.3 6775
		Total (Electric Heat Pump)	110.0 27100

WINTER CALCULATIONS

Winter Heating Load (for 1302 sqft)

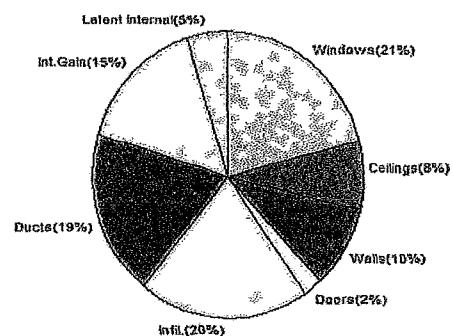
Load component		Load	
Window total	172 sqft	1909	Btuh
Wall total	1185 sqft	3890	Btuh
Door total	40 sqft	681	Btuh
Ceiling total	1432 sqft	1687	Btuh
Floor total	1302 sqft	2535	Btuh
Infiltration	120 cfm	4873	Btuh
Duct loss		3569	Btuh
Subtotal		19144	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		19144	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1302 sqft)

Load component		Load	
Window total	172 sqft	5174	Btuh
Wall total	1185 sqft	2343	Btuh
Door total	40 sqft	515	Btuh
Ceiling total	1432 sqft	1915	Btuh
Floor total		0	Btuh
Infiltration	90 cfm	1679	Btuh
Internal gain		3780	Btuh
Duct gain		3834	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		19241	Btuh
Latent gain(ducts)		908	Btuh
Latent gain(infiltration)		3297	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		5405	Btuh
TOTAL HEAT GAIN		24646	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: N/A

DATE: 4/30/14

EnergyGauge® / USRFZB v3.0

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A
Rose Point Place
Lake City, FL 32024-

Project Title:
Model 1302
Building Type: User

5/1/2014

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 F (MJ8 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.50	Vinyl	0.30	E	30.0		11.1	333 Btuh
2	2, NFRC 0.50	Vinyl	0.30	N	60.0		11.1	666 Btuh
3	2, NFRC 0.50	Vinyl	0.30	W	30.0		11.1	333 Btuh
4	2, NFRC 0.50	Vinyl	0.30	W	16.0		11.1	178 Btuh
5	2, NFRC 0.50	Vinyl	0.30	S	6.0		11.1	67 Btuh
6	2, NFRC 0.50	Vinyl	0.30	S	30.0		11.1	333 Btuh
Window Total					172.0(sqft)			1909 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.28	269 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	315		3.28	1034 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	278		3.28	913 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	288		3.28	946 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	172		3.28	565 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	50		3.28	163 Btuh
Wall Total					1185(sqft)			3890 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
2	Insulated - Garage, n		(0.460)		20		17.0	340 Btuh
Door Total					40(sqft)			681 Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1432		1.2	1687 Btuh
Ceiling Total					1432(sqft)			1687 Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(0.442)	5.0	155.0 ft(perim.)		16.4	2535 Btuh
Floor Total					1302 sqft			2535 Btuh
Envelope Subtotal:								10702 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.62	11718	1.00	120.3		4873 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.229)							3569 Btuh
All Zones	Sensible Subtotal All Zones							19144 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A
Rose Point Place
Lake City, FL 32024-

Project Title:
Model 1302
Building Type: User

5/1/2014

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	19144 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	19144 Btuh

EQUIPMENT

1. Electric Heat Pump	#	27100 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

N/A
Rose Point Place
Lake City, FL 32024-

Project Title:
Model 1302

5/1/2014

Reference City: Gainesville, FL

Temperature Difference: 17.0F(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	
1	2 NFRC	0.50, 0.30	No	No	E	7.5ft.	1.5ft.	30.0	28.3	1.7	16	53	531 Btuh
2	2 NFRC	0.50, 0.30	No	No	N	1.5ft	1.5ft.	60.0	0.0	60.0	16	16	937 Btuh
3	2 NFRC	0.50, 0.30	No	No	W	1.5ft.	1.5ft	30.0	0.0	30.0	16	53	1599 Btuh
4	2 NFRC	0.50, 0.30	No	No	W	1.5ft.	1.5ft	16.0	0.0	16.0	16	53	853 Btuh
5	2 NFRC	0.50, 0.30	No	No	S	1.5ft	1.5ft.	6.0	6.0	0.0	16	20	94 Btuh
6	2 NFRC	0.50, 0.30	No	No	S	1.5ft.	1.5ft.	30.0	30.0	0.0	16	20	469 Btuh
Excursion													692 Btuh
Window Total								172 (sqft)					5174 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		2.1		171 Btuh			
2	Frame - Wood - Ext	0.09		13.0/0.0		315.0		2.1		657 Btuh			
3	Frame - Wood - Ext	0.09		13.0/0.0		278.0		2.1		580 Btuh			
4	Frame - Wood - Ext	0.09		13.0/0.0		288.0		2.1		601 Btuh			
5	Frame - Wood - Adj	0.09		13.0/0.0		172.0		1.5		260 Btuh			
6	Frame - Wood - Adj	0.09		13.0/0.0		49.5		1.5		75 Btuh			
Wall Total						1185 (sqft)				2343 Btuh			
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load			
		Cav/Sheath											
1	Insulated - Exterior	0.09		13.0/0.0		20.0		12.9		258 Btuh			
2	Insulated - Garage	0.09		13.0/0.0		20.0		12.9		258 Btuh			
Door Total						40 (sqft)				515 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load			
		Cav/Sheath											
1	Vented AtticLight/Shingle	0.032		30.0/0.0		1432.0		1.34		1915 Btuh			
Ceiling Total						1432 (sqft)				1915 Btuh			
Floors	Type	U-Value		R-Value		Size		HTM		Load			
		Cav/Sheath											
1	Slab On Grade	0.09		13.0/0.0		1302 (ft-perimeter)		0.0		0 Btuh			
Floor Total						1302.0 (sqft)				0 Btuh			
Envelope Subtotal:											9948 Btuh		
Infiltration	Type	Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load			
		Cav/Sheath											
	Natural	0.46		11718		1		90.2		1679 Btuh			
Internal gain		Occupants		Btuh/occupant		Appliance		Load					
		Cav/Sheath											
		6		X 230		+		2400		3780 Btuh			
Sensible Envelope Load:											15407 Btuh		
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)	U-Value		R-Value		Area(sqft)		HTM		Load			
		Cav/Sheath											
		0.09		13.0/0.0		1302.0		0.0		3834 Btuh			
Sensible Load All Zones											19241 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
Rose Point Place
Lake City, FL 32024-

Project Title:
Model 1302

Climate: FL_GAINESVILLE_REGIONAL_A

5/1/2014

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15407 Btuh
	Sensible Duct Load	3834 Btuh
	Total Sensible Zone Loads	19241 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19241 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	3297 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	908 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5405 Btuh
	TOTAL GAIN	24646 Btuh

EQUIPMENT

1. Central Unit	#	27100 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))
(Omt - compass orientation)



Version 8