

Residential System Sizing Calculation

Summary

James & Lora David
551 SE Plant St
Lake City, FL

Project Title:
Lot 6 Rosepoint



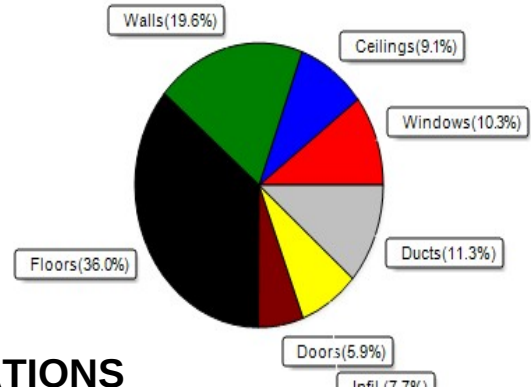
10/7/2024

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	20955 Btuh	Total cooling load calculation	18015 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	143.2 30000	Sensible (SHR = 0.80)	154.8 24000
Heat Pump + Auxiliary(0.0kW)	143.2 30000	Latent	238.5 6000
		Total (Electric Heat Pump)	166.5 30000

WINTER CALCULATIONS

Winter Heating Load (for 1496 sqft)

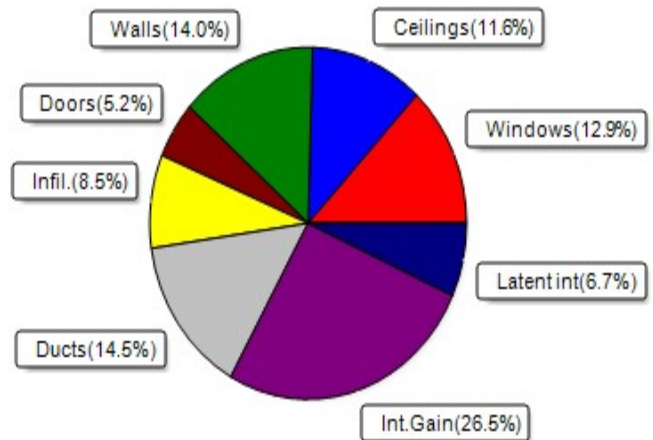
Load component	Load
Window total 163 sqft	2152 Btuh
Wall total 1193 sqft	4115 Btuh
Door total 78 sqft	1244 Btuh
Ceiling total 1496 sqft	1906 Btuh
Floor total 1496 sqft	7552 Btuh
Infiltration 37 cfm	1615 Btuh
Duct loss	2372 Btuh
Subtotal	20955 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	20955 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1496 sqft)

Load component	Load
Window total 163 sqft	2327 Btuh
Wall total 1193 sqft	2529 Btuh
Door total 78 sqft	933 Btuh
Ceiling total 1496 sqft	2096 Btuh
Floor total	0 Btuh
Infiltration 28 cfm	575 Btuh
Internal gain	4780 Btuh
Duct gain	2258 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	15499 Btuh
Latent gain(ducts)	361 Btuh
Latent gain(infiltration)	955 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2516 Btuh
TOTAL HEAT GAIN	18015 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 10-4-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

James & Lora David
551 SE Plant St
Lake City, FL

Project Title:
Lot 6 Rosepoint

10/7/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	I-A	No	N		1.5ft	1.3ft	4.0	0.0	4.0	8	8	31 Btuh
2	2 NFRC	0.22, 0.33	I-A	No	E		1.5ft	1.3ft	45.0	0.0	45.0	8	15	684 Btuh
3	2 NFRC	0.22, 0.33	I-A	No	E		1.5ft	1.3ft	20.0	0.0	20.0	8	15	304 Btuh
4	2 NFRC	0.22, 0.33	I-A	No	E		1.5ft	1.3ft	9.0	0.0	9.0	8	15	137 Btuh
5	2 NFRC	0.22, 0.33	I-A	No	S		1.5ft	1.3ft	16.0	16.0	0.0	8	9	123 Btuh
6	2 NFRC	0.22, 0.33	I-A	No	W		1.5ft	1.3ft	54.0	0.0	54.0	8	15	821 Btuh
7	2 NFRC	0.22, 0.33	I-A	No	W		1.5ft	1.3ft	15.0	0.0	15.0	8	15	228 Btuh
Window Total									163 (sqft)					2327 Btuh
Walls	Type					U-Value	R-Value		Area(sqft)		HTM		Load	
							Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.6		278.0		2.2		611 Btuh
2	Frame - Wood - Ext						0.09	13.0/0.6		321.0		2.2		706 Btuh
3	Frame - Wood - Ext						0.09	13.0/0.6		257.0		2.2		565 Btuh
4	Frame - Wood - Adj						0.09	13.0/0.6		168.2		1.6		276 Btuh
5	Frame - Wood - Ext						0.09	13.0/0.6		82.0		2.2		180 Btuh
6	Frame - Wood - Ext						0.09	13.0/0.6		87.0		2.2		191 Btuh
Wall Total									1193 (sqft)					2529 Btuh
Doors	Type							Area (sqft)		HTM		Load		
1	Insulated - Exterior								40.0		12.0		480 Btuh	
2	Insulated - Garage								17.8		12.0		213 Btuh	
3	Insulated - Exterior								20.0		12.0		240 Btuh	
Door Total									78 (sqft)					933 Btuh
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)		HTM		Load	
1	Vented Attic/Light/Metal						0.032	30.0/0.0		1496.0		1.40		2096 Btuh
Ceiling Total									1496 (sqft)					2096 Btuh
Floors	Type							R-Value		Size		HTM		Load
1	Slab On Grade								0.0		1496 (ft-perimeter)		0.0	0 Btuh
Floor Total									1496.0 (sqft)					0 Btuh
	Envelope Subtotal:													7886 Btuh
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load
Natural							0.12		13464		1		27.7	575 Btuh
Internal gain					Occupants		Btuh/occupant		Appliance		Load			
					6		X 230		+		3400		4780 Btuh	
	Sensible Envelope Load:													13241 Btuh
Duct load	Extremely sealed, Supply(R8.0-Attic), Return(R8.0-Attic) (DGM of 0.171)													2258 Btuh
	Sensible Load All Zones													15499 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

James & Lora David
551 SE Plant St
Lake City, FL

Project Title:
Lot 6 Rosepoint

Climate:FL_GAINESVILLE_REGIONAL_A

10/7/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13241 Btuh
	Sensible Duct Load	2258 Btuh
	Total Sensible Zone Loads	15499 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15499 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	955 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	361 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2516 Btuh
	TOTAL GAIN	18015 Btuh

EQUIPMENT

1. Central Unit	#	30000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

James & Lora David
551 SE Plant St
Lake City, FL

Project Title:
Lot 6 Rosepoint
Building Type: User

10/7/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)
Winter Setpoint: 70 °F (Required Manual J default)

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	4.0		13.2	53 Btuh
2	2, NFRC 0.22	Vinyl	0.33	E	45.0		13.2	594 Btuh
3	2, NFRC 0.22	Vinyl	0.33	E	20.0		13.2	264 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	9.0		13.2	119 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	16.0		13.2	211 Btuh
6	2, NFRC 0.22	Vinyl	0.33	W	54.0		13.2	713 Btuh
7	2, NFRC 0.22	Vinyl	0.33	W	15.0		13.2	198 Btuh
	Window Total				163.0(sqft)			2152 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	278		3.45	959 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	321		3.45	1107 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	257		3.45	886 Btuh
4	Frame - Wood	- Adj	(0.086)	13.0/0.6	168		3.45	580 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	82		3.45	283 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	87		3.45	300 Btuh
	Wall Total				1193(sqft)			4115 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
2	Insulated - Garage, n		(0.400)		18		16.0	284 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
	Door Total				78(sqft)			1244Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/L/Metal		(0.032)	30.0/0.0	1496		1.3	1906 Btuh
	Ceiling Total				1496(sqft)			1906Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	160.0 ft(perim.)		47.2	7552 Btuh
	Floor Total				1496 sqft			7552 Btuh
	Envelope Subtotal:							16969 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	13464	1.00	36.9		1615 Btuh
Duct load	Extremely sealed, R8.0, Supply(Att), Return(Att)						(DLM of 0.128)	2372 Btuh
All Zones	Sensible Subtotal All Zones							20955 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

James & Lora David
551 SE Plant St
Lake City, FL

Project Title:
Lot 6 Rosepoint
Building Type: User

10/7/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	20955 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	20955 Btuh

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