

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 2 Pacheco SD

Lake City, FL 32055

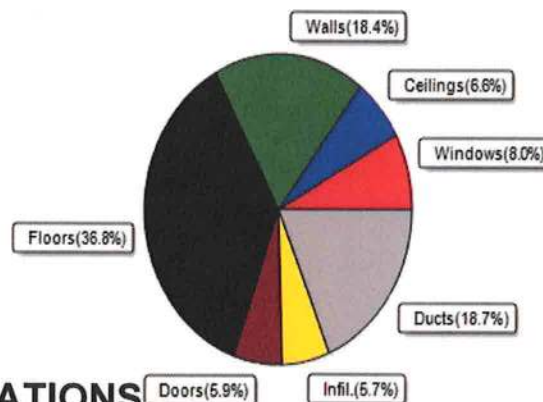
4/1/2021

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	24379 Btuh	Total cooling load calculation	15870 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 24379	Sensible (SHR = 0.75)	89.8 11902
Heat Pump + Auxiliary(0.0kW)	100.0 24379	Latent	151.7 3967
		Total (Electric Heat Pump)	100.0 15870

WINTER CALCULATIONS

Winter Heating Load (for 1511 sqft)

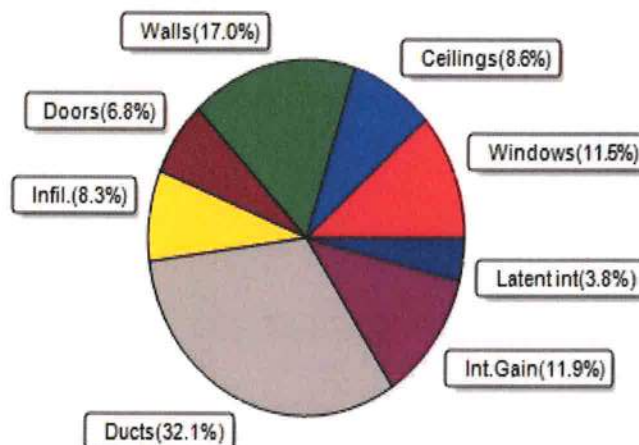
Load component		Load	
Window total	135 sqft	1942	Btuh
Wall total	1264 sqft	4488	Btuh
Door total	78 sqft	1431	Btuh
Ceiling total	1586 sqft	1610	Btuh
Floor total	1511 sqft	8968	Btuh
Infiltration	32 cfm	1383	Btuh
Duct loss		4557	Btuh
Subtotal		24379	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		24379	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1511 sqft)

Load component		Load	
Window total	135 sqft	1830	Btuh
Wall total	1264 sqft	2696	Btuh
Door total	78 sqft	1073	Btuh
Ceiling total	1586 sqft	1369	Btuh
Floor total		0	Btuh
Infiltration	24 cfm	493	Btuh
Internal gain		1890	Btuh
Duct gain		3904	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		13255	Btuh
Latent gain(ducts)		1197	Btuh
Latent gain(infiltration)		818	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		600	Btuh
Total latent gain		2615	Btuh
TOTAL HEAT GAIN		15870	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32055

Project Title:
Lot 2 Pacheco SD
Building Type: User

4/1/2021

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	45.0		14.4	648 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
3	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	9.0		14.4	130 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	S	3.9		14.4	56 Btuh
	Window Total					134.9(sqft)		1942 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	179		3.55	636 Btuh
2	Frame - Wood	- Adj	(0.089)	13.0/0.0	144		3.55	511 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	142		3.55	505 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	232 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	74		3.55	263 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	399		3.55	1418 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	260		3.55	923 Btuh
	Wall Total					1264(sqft)		4488 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		18		18.4	327 Btuh
2	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
3	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
	Door Total					78(sqft)		1431Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1586		1.0	1610 Btuh
	Ceiling Total					1586(sqft)		1610Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	190.0 ft(perim.)		47.2	8968 Btuh
	Floor Total					1511 sqft		8968 Btuh
	Envelope Subtotal:							18439 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	12088	1.00	31.6		1383 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.230)							4557 Btuh
All Zones	Sensible Subtotal All Zones							24379 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32055

Project Title:
Lot 2 Pacheco SD
Building Type: User

4/1/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	24379 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	24379 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24379 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

Project Title:
Lot 2 Pacheco SD

Lake City, FL 32055

4/1/2021

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		6.0ft.	1.0ft.	45.0	45.0	0.0	12	14	544	Btuh				
2	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh				
3	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544	Btuh				
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	9.0	0.0	9.0	12	12	109	Btuh				
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	20.0	0.0	20.0	12	12	242	Btuh				
6	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	1.0	5.0	12	31	167	Btuh				
7	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	3.9	3.9	0.0	12	14	47	Btuh				
Window Total									135 (sqft)					1830 Btuh					
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load					
								Cav/Sheath											
1	Frame - Wood - Ext						0.09	13.0/0.0	179.0			2.3		405 Btuh					
2	Frame - Wood - Adj						0.09	13.0/0.0	144.0			1.7		243 Btuh					
3	Frame - Wood - Adj						0.09	13.0/0.0	142.2			1.7		240 Btuh					
4	Frame - Wood - Ext						0.09	13.0/0.0	65.4			2.3		148 Btuh					
5	Frame - Wood - Ext						0.09	13.0/0.0	74.0			2.3		167 Btuh					
6	Frame - Wood - Ext						0.09	13.0/0.0	399.3			2.3		904 Btuh					
7	Frame - Wood - Ext						0.09	13.0/0.0	260.0			2.3		588 Btuh					
Wall Total									1264 (sqft)					2696 Btuh					
Doors	Type									Area (sqft)			HTM		Load				
1	Insulated - Garage									17.8			13.8		245 Btuh				
2	Insulated - Exterior									40.0			13.8		552 Btuh				
3	Insulated - Exterior									20.0			13.8		276 Btuh				
Door Total									78 (sqft)					1073 Btuh					
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load					
1	Vented Attic/Light/Shingle/RB						0.025	38.0/0.0	1586.0			0.86		1369 Btuh					
Ceiling Total									1586 (sqft)					1369 Btuh					
Floors	Type									R-Value			Size		HTM		Load		
1	Slab On Grade									0.0			1511 (ft-perimeter)			0.0		0 Btuh	
Floor Total									1511.0 (sqft)					0 Btuh					
Envelope Subtotal:														6968 Btuh					
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural						0.12		12088		1		23.7		493 Btuh				
Internal gain							Occupants		Btuh/occupant				Appliance		Load				
							3		X 230		+		1200		1890 Btuh				
Sensible Envelope Load:														9351 Btuh					
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.418)				3904 Btuh				
Sensible Load All Zones														13255 Btuh					

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title:
Lot 2 Pacheco SD

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

4/1/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9351 Btuh
	Sensible Duct Load	3904 Btuh
	Total Sensible Zone Loads	13255 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	13255 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	818 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1197 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2615 Btuh
	TOTAL GAIN	15870 Btuh

EQUIPMENT

1. Central Unit	#	15870 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