

Residential System Sizing Calculation

Summary

Jose & Mercy Urrutia

Project Title:
Urrutia Residence

Lake City, FL 32055

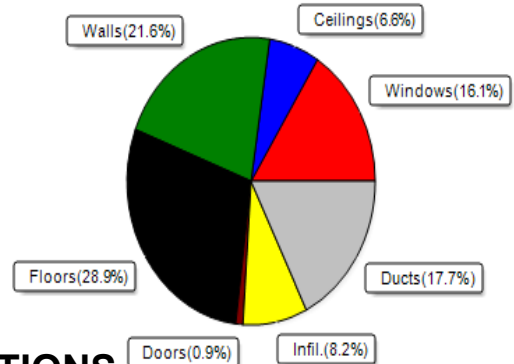
6/9/2023

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	46874 Btuh	Total cooling load calculation	41330 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	68.0 31881	Sensible (SHR = 0.70)	42.1 14723
Heat Pump + Auxiliary(0.0kW)	68.0 31881	Latent	99.8 6310
		Total (Electric Heat Pump)	50.9 21034

WINTER CALCULATIONS

Winter Heating Load (for 2784 sqft)

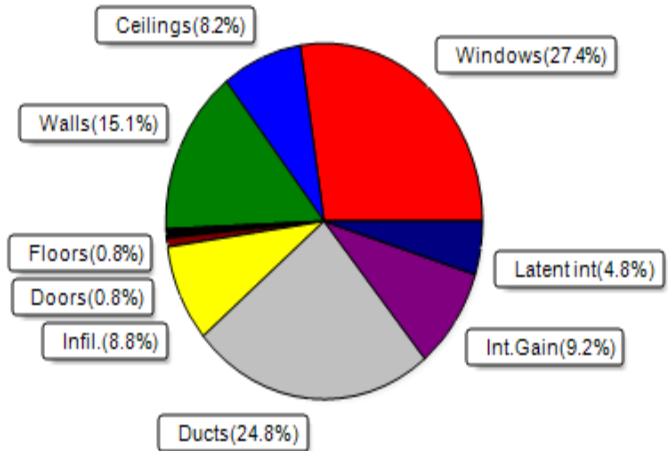
Load component	Load
Window total 523 sqft	7531 Btuh
Wall total 2849 sqft	10114 Btuh
Door total 24 sqft	442 Btuh
Ceiling total 3038 sqft	3084 Btuh
Floor total See detail report	13557 Btuh
Infiltration 88 cfm	3859 Btuh
Duct loss	8287 Btuh
Subtotal	46874 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	46874 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2784 sqft)

Load component	Load
Window total 523 sqft	11325 Btuh
Wall total 2849 sqft	6239 Btuh
Door total 24 sqft	331 Btuh
Ceiling total 3038 sqft	3393 Btuh
Floor total	337 Btuh
Infiltration 66 cfm	1375 Btuh
Internal gain	3800 Btuh
Duct gain	8209 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	35008 Btuh
Latent gain(ducts)	2041 Btuh
Latent gain(infiltration)	2281 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	2000 Btuh
Total latent gain	6322 Btuh
TOTAL HEAT GAIN	41330 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 6 / 9 / 2023

W. C. M.

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jose & Mercy Urrutia

Project Title:
Urrutia Residence
Building Type: User

Lake City, FL 32055

6/9/2023

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 0.25	Vinyl	0.36	NE	60.0		14.4	864 Btuh
2	2, NFRC 0.25	TIM	0.36	NE	24.0		14.4	346 Btuh
3	2, NFRC 0.25	Vinyl	0.36	NE	36.0		14.4	518 Btuh
4	2, NFRC 0.25	Vinyl	0.36	SE	4.0		14.4	58 Btuh
5	2, NFRC 0.25	Vinyl	0.36	SW	15.0		14.4	216 Btuh
6	2, NFRC 0.25	TIM	0.36	SW	96.0		14.4	1382 Btuh
7	2, NFRC 0.25	Vinyl	0.36	SE	36.0		14.4	518 Btuh
8	2, NFRC 0.25	Vinyl	0.36	SW	36.0		14.4	518 Btuh
9	2, NFRC 0.25	Vinyl	0.36	SE	36.0		14.4	518 Btuh
10	2, NFRC 0.25	Vinyl	0.36	SW	36.0		14.4	518 Btuh
11	2, NFRC 0.25	Vinyl	0.36	NW	64.0		14.4	922 Btuh
12	2, NFRC 0.25	Vinyl	0.36	NW	16.0		14.4	230 Btuh
13	2, NFRC 0.25	Vinyl	0.36	NE	32.0		14.4	461 Btuh
14	2, NFRC 0.25	Vinyl	0.36	NW	32.0		14.4	461 Btuh
Window Total					523.0(sqft)			7531 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	216		3.55	767 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	453 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	325 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	453 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	215		3.55	763 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	221		3.55	783 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	74		3.55	263 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	94		3.55	334 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	180		3.55	639 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	213		3.55	754 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	192		3.55	682 Btuh
14	Frame - Wood	- Adj	(0.089)	13.0/0.0	171		3.55	607 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	115		3.55	407 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	248		3.55	880 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	147		3.55	521 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	280		3.55	994 Btuh
Wall Total					2849(sqft)			10114 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		24		18.4	442 Btuh
Door Total					24(sqft)			442Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jose & Mercy Urrutia

Project Title:
Urrutia Residence
Building Type: User

Lake City, FL 32055

6/9/2023

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/M/Shing	(0.025)	38.0/0.0	2534	1.0	2573 Btuh
2	Flat ceil/M/Shing	(0.025)	38.0/0.0	504	1.0	512 Btuh
	Ceiling Total			3038(sqft)		3084Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	266.8 ft(perim.)	47.2	12595 Btuh
2	Raised Wood - Adj	(0.050)	19.0	480.0 sqft	2.0	963 Btuh
	Floor Total			2784 sqft		13557 Btuh
	Envelope Subtotal:					34729 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.22	24576	1.00	88.1	3859 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.215)					8287 Btuh
All Zones	Sensible Subtotal All Zones					46874 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	46874 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	46874 Btuh

EQUIPMENT

1. Electric Heat Pump	#	31881 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

Jose & Mercy Urrutia

Project Title:
Urrutia Residence

Lake City, FL 32055

6/9/2023

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	0.25, 0.36	No	No	NE		9.5ft.	1.0ft.	60.0	0.0	60.0	12	24	1418 Btuh
2	2 NFRC	0.25, 0.36	No	No	NE		9.5ft.	1.0ft.	24.0	0.0	24.0	12	24	567 Btuh
3	2 NFRC	0.25, 0.36	No	No	NE		1.0ft.	1.0ft.	36.0	0.0	36.0	12	24	851 Btuh
4	2 NFRC	0.25, 0.36	No	No	SE		1.0ft.	3.0ft.	4.0	0.0	4.0	12	25	99 Btuh
5	2 NFRC	0.25, 0.36	No	No	SW		12.5f	1.0ft.	15.0	15.0	0.0	12	25	181 Btuh
6	2 NFRC	0.25, 0.36	No	No	SW		12.5f	1.0ft.	96.0	96.0	0.0	12	25	1161 Btuh
7	2 NFRC	0.25, 0.36	No	No	SE		1.5ft.	1.0ft.	36.0	8.8	27.2	12	25	780 Btuh
8	2 NFRC	0.25, 0.36	No	No	SW		1.5ft.	1.0ft.	36.0	8.8	27.2	12	25	780 Btuh
9	2 NFRC	0.25, 0.36	No	No	SE		1.5ft.	4.0ft.	36.0	0.0	36.0	12	25	891 Btuh
10	2 NFRC	0.25, 0.36	No	No	SW		1.0ft.	8.0ft.	36.0	0.0	36.0	12	25	891 Btuh
11	2 NFRC	0.25, 0.36	No	No	NW		1.5ft.	4.0ft.	64.0	0.0	64.0	12	24	1513 Btuh
12	2 NFRC	0.25, 0.36	No	No	NW		1.0ft.	4.0ft.	16.0	0.0	16.0	12	24	378 Btuh
13	2 NFRC	0.25, 0.36	No	No	NE		1.0ft.	5.0ft.	32.0	0.0	32.0	12	24	756 Btuh
14	2 NFRC	0.25, 0.36	No	No	NW		1.0ft.	2.0ft.	32.0	0.0	32.0	12	24	756 Btuh
	Excursion													301 Btuh
	Window Total								523 (sqft)					11325 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Frame - Wood - Ext		0.09		13.0/0.0		216.0		2.3		489 Btuh			
2	Frame - Wood - Ext		0.09		13.0/0.0		127.5		2.3		289 Btuh			
3	Frame - Wood - Ext		0.09		13.0/0.0		91.5		2.3		207 Btuh			
4	Frame - Wood - Ext		0.09		13.0/0.0		127.5		2.3		289 Btuh			
5	Frame - Wood - Ext		0.09		13.0/0.0		18.0		2.3		41 Btuh			
6	Frame - Wood - Ext		0.09		13.0/0.0		215.0		2.3		487 Btuh			
7	Frame - Wood - Ext		0.09		13.0/0.0		220.7		2.3		499 Btuh			
8	Frame - Wood - Ext		0.09		13.0/0.0		74.0		2.3		167 Btuh			
9	Frame - Wood - Ext		0.09		13.0/0.0		94.0		2.3		213 Btuh			
10	Frame - Wood - Ext		0.09		13.0/0.0		120.0		2.3		272 Btuh			
11	Frame - Wood - Ext		0.09		13.0/0.0		180.0		2.3		407 Btuh			
12	Frame - Wood - Ext		0.09		13.0/0.0		212.5		2.3		481 Btuh			
13	Frame - Wood - Adj		0.09		13.0/0.0		192.0		1.7		324 Btuh			
14	Frame - Wood - Adj		0.09		13.0/0.0		170.8		1.7		288 Btuh			
15	Frame - Wood - Ext		0.09		13.0/0.0		114.7		2.3		260 Btuh			
16	Frame - Wood - Ext		0.09		13.0/0.0		248.0		2.3		561 Btuh			
17	Frame - Wood - Ext		0.09		13.0/0.0		146.7		2.3		332 Btuh			
18	Frame - Wood - Ext		0.09		13.0/0.0		280.0		2.3		634 Btuh			
	Wall Total								2849 (sqft)				6239 Btuh	
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Garage		24.0		13.8	331 Btuh								
	Door Total			24 (sqft)		331 Btuh								
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load								
1	Vented Attic/Med/Shingle/RB	0.025	38.0/0.0	2534.0	1.12	2830 Btuh								
2	Vented Attic/Med/Shingle/RB	0.025	38.0/0.0	504.0	1.12	563 Btuh								
	Ceiling Total			3038 (sqft)		3393 Btuh								
Floors	Type	R-Value		Size	HTM	Load								
1	Slab On Grade		0.0	2304 (ft-perimeter)	0.0	0 Btuh								
2	Raised Wood - Adj		19.0	480 (sqft)	0.7	337 Btuh								
	Floor Total			2784.0 (sqft)		337 Btuh								

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jose & Mercy Urrutia

Project Title:
Urrutia Residence

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

6/9/2023

	Envelope Subtotal:					21624 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.16	24576	1	66.1	1375 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		10	X 230	+	1500	3800 Btuh
	Sensible Envelope Load:					26799 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.306)					8209 Btuh
	Sensible Load All Zones					35008 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jose & Mercy Urrutia

Project Title: Urrutia Residence

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

6/9/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	26799 Btuh
	Sensible Duct Load	8209 Btuh
	Total Sensible Zone Loads	35008 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	35008 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2281 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	2041 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	6322 Btuh
	TOTAL GAIN	41330 Btuh

EQUIPMENT

1. Central Unit	#	21034 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