

Residential System Sizing Calculation

Summary

Jimenez

Project Title:
210271 Jimenez

Lake City, FL

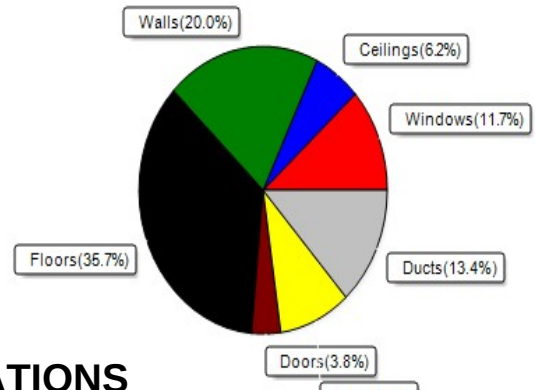
2021-02-17

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	33943 Btuh	Total cooling load calculation	29689 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	109.0 37000	Sensible (SHR = 0.75)	108.8 27750
Heat Pump + Auxiliary(0.0kW)	109.0 37000	Latent	220.8 9250
		Total (Electric Heat Pump)	124.6 37000

WINTER CALCULATIONS

Winter Heating Load (for 1912 sqft)

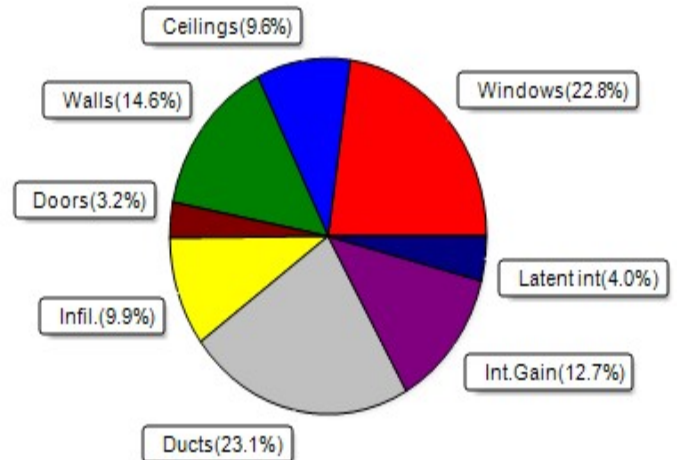
Load component		Load	
Window total	331 sqft	3972	Btuh
Wall total	1916 sqft	6801	Btuh
Door total	80 sqft	1280	Btuh
Ceiling total	2072 sqft	2104	Btuh
Floor total	1912 sqft	12130	Btuh
Infiltration	71 cfm	3116	Btuh
Duct loss		4540	Btuh
Subtotal		33943	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		33943	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1912 sqft)

Load component		Load	
Window total	331 sqft	6758	Btuh
Wall total	1916 sqft	4335	Btuh
Door total	80 sqft	960	Btuh
Ceiling total	2072 sqft	2840	Btuh
Floor total		0	Btuh
Infiltration	53 cfm	1110	Btuh
Internal gain		3780	Btuh
Duct gain		5716	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		25499	Btuh
Latent gain(ducts)		1148	Btuh
Latent gain(infiltration)		1842	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		4190	Btuh
TOTAL HEAT GAIN		29689	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2021-02-17**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jimenez

Lake City, FL

Project Title:
210271 Jimenez
Building Type: User

2021-02-17

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)
This calculation is for Worst Case. The house has been rotated 135 degrees.

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.20	Metal	0.30	SE	4.0		12.0	48 Btuh
2	2, NFRC 0.20	Metal	0.30	SW	4.0		12.0	48 Btuh
3	2, NFRC 0.20	Metal	0.30	SE	32.0		12.0	384 Btuh
4	2, NFRC 0.20	Metal	0.30	NE	32.0		12.0	384 Btuh
5	2, NFRC 0.20	Metal	0.30	SE	18.0		12.0	216 Btuh
6	2, NFRC 0.20	Metal	0.30	SW	8.0		12.0	96 Btuh
7	2, NFRC 0.20	Metal	0.30	SW	36.0		12.0	432 Btuh
8	2, NFRC 0.20	Metal	0.30	SW	36.0		12.0	432 Btuh
9	2, NFRC 0.20	Metal	0.30	NW	36.0		12.0	432 Btuh
10	2, NFRC 0.20	Metal	0.30	NW	36.0		12.0	432 Btuh
11	2, NFRC 0.20	Metal	0.30	NW	24.0		12.0	288 Btuh
12	2, NFRC 0.20	Metal	0.30	W	8.0		12.0	96 Btuh
13	2, NFRC 0.20	Metal	0.30	NW	8.0		12.0	96 Btuh
14	2, NFRC 0.20	Metal	0.30	N	8.0		12.0	96 Btuh
15	2, NFRC 0.20	Metal	0.30	NW	18.0		12.0	216 Btuh
16	2, NFRC 0.20	Metal	0.30	NE	8.0		12.0	96 Btuh
17	2, NFRC 0.20	Metal	0.30	NE	15.0		12.0	180 Btuh
Window Total					331.0(sqft)			3972 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	131		3.55	466 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.55	56 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	70		3.55	249 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	151		3.55	537 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	134		3.55	477 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	146		3.55	519 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	22		3.55	77 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	61		3.55	216 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	164		3.55	580 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	327		3.55	1159 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	146		3.55	519 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	103		3.55	365 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	19		3.55	67 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	19		3.55	67 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	19		3.55	67 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	119		3.55	421 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	270		3.55	957 Btuh
Wall Total					1916(sqft)			6801 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jimenez
Lake City, FL

Project Title:
210271 Jimenez
Building Type: User

2021-02-17

Doors	Type	Storm Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n	(0.400)		24		16.0	384 Btuh
2	Insulated - Exterior, n	(0.400)		16		16.0	256 Btuh
3	Insulated - Exterior, n	(0.400)		16		16.0	256 Btuh
4	Insulated - Exterior, n	(0.400)		24		16.0	384 Btuh
	Door Total			80(sqft)			1280Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/D/Shing	(0.025)	38.0/0.0	1912		1.0	1941 Btuh
2	Knee Wall/D/Shing	(0.025)	38.0/0.0	160		1.0	162 Btuh
	Ceiling Total			2072(sqft)			2104Btuh
Floors	Type	Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	257.0 ft(perim.)		47.2	12130 Btuh
	Floor Total			1912 sqft			12130 Btuh
	Envelope Subtotal:						26287 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural	0.24	18164	1.00	71.2		3116 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.154)						4540 Btuh
All Zones	Sensible Subtotal All Zones						33943 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	33943 Btuh 0 Btuh 33943 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	37000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Jimenez

Lake City, FL

Project Title:
210271 Jimenez
Building Type: User

2021-02-17

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

Jimenez

Project Title:
210271 Jimenez

Lake City, FL

2021-02-17

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

This calculation is for Worst Case. The house has been rotated 135 degrees.

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	0.20, 0.30	No	No	SE	1.5ft	1.0ft	4.0	4.0	0.0	10	20	40 Btuh
2	2 NFRC	0.20, 0.30	No	No	SW	1.5ft	1.0ft	4.0	4.0	0.0	10	20	40 Btuh
3	2 NFRC	0.20, 0.30	No	No	SE	1.5ft	1.0ft	32.0	5.9	26.1	10	20	582 Btuh
4	2 NFRC	0.20, 0.30	No	No	NE	8.3ft	1.0ft	32.0	0.0	32.0	10	19	612 Btuh
5	2 NFRC	0.20, 0.30	No	No	SE	1.5ft	1.0ft	18.0	4.4	13.6	10	20	316 Btuh
6	2 NFRC	0.20, 0.30	No	No	SW	1.5ft	1.0ft	8.0	8.0	0.0	10	20	79 Btuh
7	2 NFRC	0.20, 0.30	No	No	SW	1.5ft	1.0ft	36.0	8.8	27.2	10	20	632 Btuh
8	2 NFRC	0.20, 0.30	No	No	SW	1.5ft	1.0ft	36.0	8.8	27.2	10	20	632 Btuh
9	2 NFRC	0.20, 0.30	No	No	NW	1.5ft	1.0ft	36.0	0.0	36.0	10	19	689 Btuh
10	2 NFRC	0.20, 0.30	No	No	NW	1.5ft	1.0ft	36.0	0.0	36.0	10	19	689 Btuh
11	2 NFRC	0.20, 0.30	No	No	NW	7.5ft	1.0ft	24.0	0.0	24.0	10	19	459 Btuh
12	2 NFRC	0.20, 0.30	No	No	W	1.5ft	1.0ft	8.0	0.5	7.5	10	25	192 Btuh
13	2 NFRC	0.20, 0.30	No	No	NW	1.5ft	1.0ft	8.0	0.0	8.0	10	19	153 Btuh
14	2 NFRC	0.20, 0.30	No	No	N	1.5ft	1.0ft	8.0	0.0	8.0	10	10	79 Btuh
15	2 NFRC	0.20, 0.30	No	No	NW	1.5ft	1.0ft	18.0	0.0	18.0	10	19	345 Btuh
16	2 NFRC	0.20, 0.30	No	No	NE	1.5ft	1.0ft	8.0	0.0	8.0	10	19	153 Btuh
17	2 NFRC	0.20, 0.30	No	No	NE	1.5ft	1.0ft	15.0	0.0	15.0	10	19	287 Btuh
Excursion													778 Btuh
Window Total								331 (sqft)					6758 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load			
				Cav/Sheath									
1	Frame - Wood - Ext		0.09	13.0/0.0			131.3		2.3		297 Btuh		
2	Frame - Wood - Ext		0.09	13.0/0.0			15.8		2.3		36 Btuh		
3	Frame - Wood - Ext		0.09	13.0/0.0			70.3		2.3		159 Btuh		
4	Frame - Wood - Ext		0.09	13.0/0.0			151.3		2.3		342 Btuh		
5	Frame - Wood - Ext		0.09	13.0/0.0			134.3		2.3		304 Btuh		
6	Frame - Wood - Ext		0.09	13.0/0.0			146.3		2.3		331 Btuh		
7	Frame - Wood - Ext		0.09	13.0/0.0			21.8		2.3		49 Btuh		
8	Frame - Wood - Ext		0.09	13.0/0.0			60.8		2.3		137 Btuh		
9	Frame - Wood - Ext		0.09	13.0/0.0			163.5		2.3		370 Btuh		
10	Frame - Wood - Ext		0.09	13.0/0.0			326.5		2.3		739 Btuh		
11	Frame - Wood - Ext		0.09	13.0/0.0			146.3		2.3		331 Btuh		
12	Frame - Wood - Ext		0.09	13.0/0.0			102.8		2.3		233 Btuh		
13	Frame - Wood - Ext		0.09	13.0/0.0			19.0		2.3		43 Btuh		
14	Frame - Wood - Ext		0.09	13.0/0.0			19.0		2.3		43 Btuh		
15	Frame - Wood - Ext		0.09	13.0/0.0			19.0		2.3		43 Btuh		
16	Frame - Wood - Ext		0.09	13.0/0.0			118.5		2.3		268 Btuh		
17	Frame - Wood - Ext		0.09	13.0/0.0			269.5		2.3		610 Btuh		
Wall Total								1916 (sqft)					4335 Btuh
Doors	Type					Area (sqft)		HTM		Load			
1	Insulated - Exterior						24.0		12.0		288 Btuh		
2	Insulated - Exterior						16.0		12.0		192 Btuh		
3	Insulated - Exterior						16.0		12.0		192 Btuh		
4	Insulated - Exterior						24.0		12.0		288 Btuh		
Door Total								80 (sqft)					960 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jimenez

Project Title:
210271 Jimenez

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2021-02-17

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.025	38.0/0.0	1912.0	1.37	2621 Btuh
2	Knee Wall/DarkShingle	0.025	38.0/0.0	160.0	1.37	219 Btuh
	Ceiling Total			2072 (sqft)		2840 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	1912 (ft-perimeter)	0.0	0 Btuh
	Floor Total			1912.0 (sqft)		0 Btuh
	Envelope Subtotal:					14893 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.18	18164	1	53.4	1110 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance		Load
		6	X 230	+	2400	3780 Btuh
	Sensible Envelope Load:					19783 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.289)	5716 Btuh
	Sensible Load All Zones					25499 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jimenez

Project Title:
210271 Jimenez

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2021-02-17

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	19783 Btuh
	Sensible Duct Load	5716 Btuh
	Total Sensible Zone Loads	25499 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	25499 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1842 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1148 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4190 Btuh
	TOTAL GAIN	29689 Btuh

EQUIPMENT

1. Central Unit	#	37000 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