

Residential System Sizing Calculation

Summary

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res

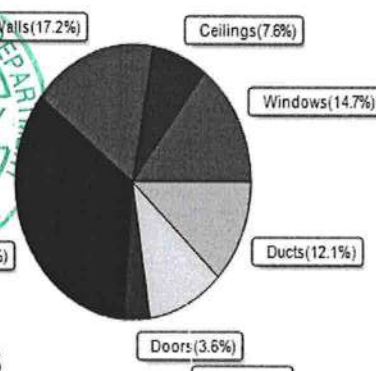
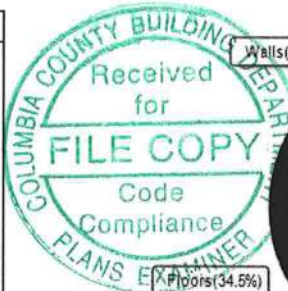
2021-04-26

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)			
Winter design temperature(MJ8 99%)	32 F	Summer design temperature(MJ8 99%)	99 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	38 F	Summer temperature difference	24 F
Total heating load calculation	30685 Btuh	Total cooling load calculation	28224 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	110.8 34000	Sensible (SHR = 0.75)	108.8 25500
Heat Pump + Auxiliary(0.0kW)	110.8 34000	Latent	177.7 8500
		Total (Electric Heat Pump)	120.5 34000

WINTER CALCULATIONS

Winter Heating Load (for 2195 sqft)

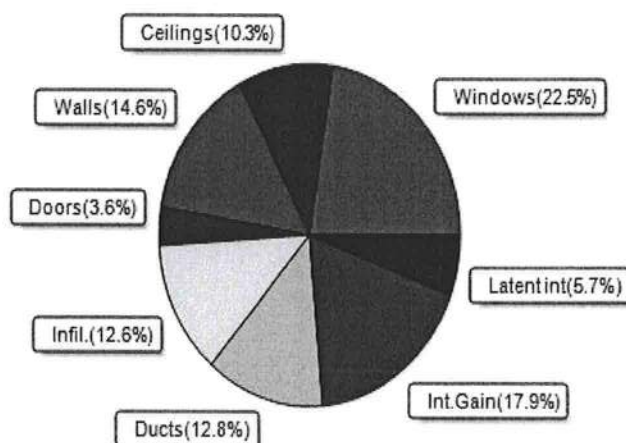
Load component		Load	
Window total	371 sqft	4510 Btuh	
Wall total	1567 sqft	5285 Btuh	
Door total	73 sqft	1115 Btuh	
Ceiling total	2415 sqft	2328 Btuh	
Floor total	2195 sqft	10582 Btuh	
Infiltration	76 cfm	3151 Btuh	
Duct loss		3714 Btuh	
Subtotal		30685 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		30685 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 2195 sqft)

Load component		Load	
Window total	371 sqft	6345 Btuh	
Wall total	1567 sqft	4124 Btuh	
Door total	73 sqft	1027 Btuh	
Ceiling total	2415 sqft	2910 Btuh	
Floor total		0 Btuh	
Infiltration	57 cfm	1493 Btuh	
Internal gain		5040 Btuh	
Duct gain		2503 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		23442 Btuh	
Latent gain(ducts)		1106 Btuh	
Latent gain(infiltration)		2076 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1600 Btuh	
Total latent gain		4782 Btuh	
TOTAL HEAT GAIN		28224 Btuh	



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2021-04-26

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res
Building Type: User

2021-04-26

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 38.0 F (MJ8 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.22	Metal	0.32	N	44.4		12.2	540 Btuh
2	2, NFRC 0.22	Metal	0.32	N	16.0		12.2	195 Btuh
3	2, NFRC 0.22	Metal	0.32	NW	20.0		12.2	243 Btuh
4	2, NFRC 0.22	Metal	0.32	NW	6.0		12.2	73 Btuh
5	2, NFRC 0.22	Metal	0.32	N	20.0		12.2	243 Btuh
6	2, NFRC 0.22	Metal	0.32	N	6.0		12.2	73 Btuh
7	2, NFRC 0.22	Metal	0.32	NE	20.0		12.2	243 Btuh
8	2, NFRC 0.22	Metal	0.32	NE	6.0		12.2	73 Btuh
9	2, NFRC 0.22	Metal	0.32	NW	12.2		12.2	149 Btuh
10	2, NFRC 0.22	Metal	0.32	E	30.0		12.2	365 Btuh
11	2, NFRC 0.22	Metal	0.32	E	8.0		12.2	97 Btuh
12	2, NFRC 0.22	Metal	0.32	E	30.0		12.2	365 Btuh
13	2, NFRC 0.22	Metal	0.32	S	30.0		12.2	365 Btuh
14	2, NFRC 0.22	Metal	0.32	S	12.0		12.2	146 Btuh
15	2, NFRC 0.22	Metal	0.32	S	15.6		12.2	189 Btuh
16	2, NFRC 0.22	Metal	0.32	S	10.7		12.2	130 Btuh
17	2, NFRC 0.22	Metal	0.32	S	30.0		12.2	365 Btuh
18	2, NFRC 0.22	Metal	0.32	S	9.0		12.2	109 Btuh
19	2, NFRC 0.22	Metal	0.32	W	15.0		12.2	182 Btuh
20	2, NFRC 0.22	Metal	0.32	W	30.0		12.2	365 Btuh
Window Total					370.9(sqft)			4510 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	112		3.37	378 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.37	243 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.37	431 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.37	81 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	26		3.37	87 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.37	81 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.37	53 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	15		3.37	49 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	37		3.37	124 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	105		3.37	353 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	212		3.37	715 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	166		3.37	560 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	39		3.37	130 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.37	212 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	48		3.37	160 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	38		3.37	127 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	38		3.37	128 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	134		3.37	451 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	273		3.37	921 Btuh
Wall Total					1567(sqft)			5285 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res
Building Type: User

2021-04-26

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior, n	(0.400)		27	15.2	405 Btuh
2	Insulated - Exterior, n	(0.400)		7	15.2	101 Btuh
3	Insulated - Garage, n	(0.400)		20	15.2	304 Btuh
4	Insulated - Exterior, n	(0.400)		20	15.2	304 Btuh
	Door Total			73(sqft)		1115Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Unvent Attic/D/Shing	(0.241)	0.0/22.0	2415	1.0	2328 Btuh
	Ceiling Total			2415(sqft)		2328Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	236.0 ft(perim.)	44.8	10582 Btuh
	Floor Total			2195 sqft		10582 Btuh
	Envelope Subtotal:					23820 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.23	19755	1.00	75.7	3151 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Con)				(DLM of 0.138)	3714 Btuh
All Zones	Sensible Subtotal All Zones					30685 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	30685 Btuh 0 Btuh 30685 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	34000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res
Building Type: User

2021-04-26

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

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res

2021-04-26

Reference City: Gainesville, FL

Temperature Difference: 24.0F(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	Unshaded		
1	2 NFRC	0.22, 0.32	No	No	N		10.5f	2.0ft	44.4	44.4	0.0	12	14	547	Btuh
2	2 NFRC	0.22, 0.32	No	No	N		10.5f	0.5ft	16.0	16.0	0.0	12	14	197	Btuh
3	2 NFRC	0.22, 0.32	No	No	NW		12.5f	2.0ft	20.0	20.0	0.0	12	23	246	Btuh
4	2 NFRC	0.22, 0.32	No	No	NW		12.5f	0.5ft	6.0	6.0	0.0	12	23	74	Btuh
5	2 NFRC	0.22, 0.32	No	No	N		7.0ft	2.0ft	20.0	20.0	0.0	12	14	246	Btuh
6	2 NFRC	0.22, 0.32	No	No	N		7.0ft	0.5ft	6.0	6.0	0.0	12	14	74	Btuh
7	2 NFRC	0.22, 0.32	No	No	NE		99.0f	2.0ft	20.0	20.0	0.0	12	23	246	Btuh
8	2 NFRC	0.22, 0.32	No	No	NE		99.0f	0.5ft	6.0	6.0	0.0	12	23	74	Btuh
9	2 NFRC	0.22, 0.32	No	No	NW		12.5f	2.0ft	12.2	12.2	0.0	12	23	150	Btuh
10	2 NFRC	0.22, 0.32	No	No	E		1.5ft	1.0ft	30.0	1.5	28.5	12	29	842	Btuh
11	2 NFRC	0.22, 0.32	No	No	E		1.5ft	1.0ft	8.0	0.5	7.5	12	29	223	Btuh
12	2 NFRC	0.22, 0.32	No	No	E		1.5ft	1.0ft	30.0	1.5	28.5	12	29	842	Btuh
13	2 NFRC	0.22, 0.32	No	No	S		1.5ft	3.0ft	30.0	0.0	30.0	12	12	369	Btuh
14	2 NFRC	0.22, 0.32	No	No	S		1.5ft	1.0ft	12.0	0.0	12.0	12	12	148	Btuh
15	2 NFRC	0.22, 0.32	No	No	S		10.0f	4.0ft	15.6	0.0	15.6	12	12	191	Btuh
16	2 NFRC	0.22, 0.32	No	No	S		10.0f	1.0ft	10.7	0.0	10.7	12	12	131	Btuh
17	2 NFRC	0.22, 0.32	No	No	S		1.5ft	1.0ft	30.0	0.0	30.0	12	12	369	Btuh
18	2 NFRC	0.22, 0.32	No	No	S		1.5ft	1.0ft	9.0	0.0	9.0	12	12	111	Btuh
19	2 NFRC	0.22, 0.32	No	No	W		1.5ft	1.0ft	15.0	0.7	14.3	12	29	421	Btuh
20	2 NFRC	0.22, 0.32	No	No	W		1.5ft	1.0ft	30.0	1.5	28.5	12	29	842	Btuh
Window Total									371 (sqft)					6345 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext	0.09	13.0/0.0	112.0	2.7	303	Btuh								
2	Frame - Wood - Ext	0.09	13.0/0.0	72.0	2.7	195	Btuh								
3	Frame - Wood - Ext	0.09	13.0/0.0	127.9	2.7	346	Btuh								
4	Frame - Wood - Ext	0.09	13.0/0.0	24.0	2.7	65	Btuh								
5	Frame - Wood - Ext	0.09	13.0/0.0	25.7	2.7	69	Btuh								
6	Frame - Wood - Ext	0.09	13.0/0.0	24.0	2.7	65	Btuh								
7	Frame - Wood - Ext	0.09	13.0/0.0	15.8	2.7	43	Btuh								
8	Frame - Wood - Ext	0.09	13.0/0.0	14.7	2.7	40	Btuh								
9	Frame - Wood - Ext	0.09	13.0/0.0	36.7	2.7	99	Btuh								
10	Frame - Wood - Ext	0.09	13.0/0.0	104.7	2.7	283	Btuh								
11	Frame - Wood - Ext	0.09	13.0/0.0	212.0	2.7	574	Btuh								
12	Frame - Wood - Adj	0.09	13.0/0.0	166.0	2.1	354	Btuh								
13	Frame - Wood - Adj	0.09	13.0/0.0	38.7	2.1	82	Btuh								
14	Frame - Wood - Ext	0.09	13.0/0.0	63.0	2.7	171	Btuh								
15	Frame - Wood - Ext	0.09	13.0/0.0	47.5	2.7	129	Btuh								
16	Frame - Wood - Ext	0.09	13.0/0.0	37.8	2.7	102	Btuh								
17	Frame - Wood - Ext	0.09	13.0/0.0	38.0	2.7	103	Btuh								
18	Frame - Wood - Ext	0.09	13.0/0.0	133.7	2.7	362	Btuh								
19	Frame - Wood - Ext	0.09	13.0/0.0	273.0	2.7	739	Btuh								
Wall Total						1567 (sqft)			4124 Btuh						

Manual J Summer Calculations

Residential Load - Component Details (continued)

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res

Climate: FL_GAINESVILLE_REGIONAL_A

2021-04-26

Doors	Type			Area (sqft)	HTM	Load
1	Insulated - Exterior			26.7	14.0	373 Btuh
2	Insulated - Exterior			6.7	14.0	93 Btuh
3	Insulated - Garage			20.0	14.0	280 Btuh
4	Insulated - Exterior			20.0	14.0	280 Btuh
	Door Total			73 (sqft)		1027 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Unvented Attic/DarkShingle	0.241	0.0/22.0	2415.0	1.20	2910 Btuh
	Ceiling Total			2415 (sqft)		2910 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2195 (ft-perimeter)	0.0	0 Btuh
	Floor Total			2195.0 (sqft)		0 Btuh
	Envelope Subtotal:					14406 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.17	19755	1	56.8	1493 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		8	X 230	+	3200	5040 Btuh
	Sensible Envelope Load:					20938 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Condi)				(DGM of 0.120)	2503 Btuh
	Sensible Load All Zones					23442 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

336 SW Meadowwood Glen
Lake City, FL

Project Title:
210608 Flores Res

Climate: FL_GAINESVILLE_REGIONAL_A

2021-04-26

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	20938 Btuh
	Sensible Duct Load	2503 Btuh
	Total Sensible Zone Loads	23442 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	23442 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	2076 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1106 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4782 Btuh
	TOTAL GAIN	28224 Btuh

EQUIPMENT

1. Central Unit	#	34000 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