

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 88 Emerald Cove

Lake City, FL 32024

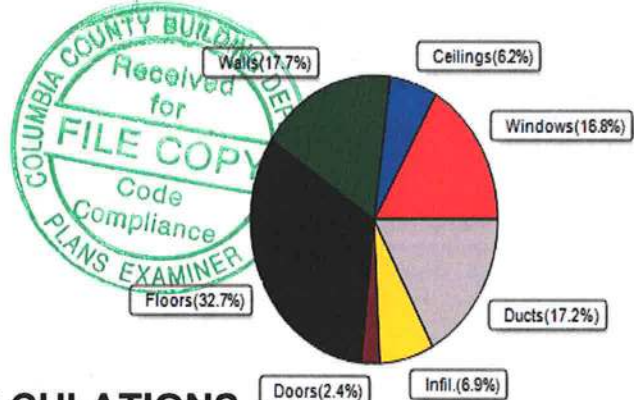
6/30/2020

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	30302 Btuh	Total cooling load calculation	21238 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 30302	Sensible (SHR = 0.85)	100.3 17983
Heat Pump + Auxiliary(0.0kW)	100.0 30302	Latent	96.1 3174
		Total (Electric Heat Pump)	99.6 21157

WINTER CALCULATIONS

Winter Heating Load (for 1771 sqft)

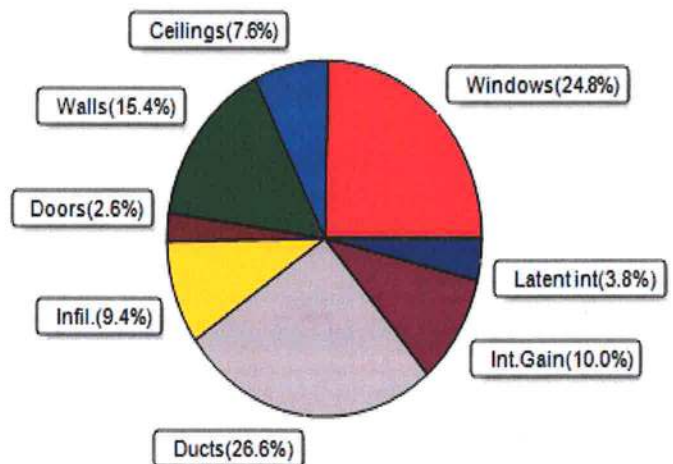
Load component		Load	
Window total	353 sqft	5088	Btuh
Wall total	1513 sqft	5373	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1860 sqft	1888	Btuh
Floor total	1771 sqft	9912	Btuh
Infiltration	48 cfm	2099	Btuh
Duct loss		5205	Btuh
Subtotal		30302	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		30302	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1771 sqft)

Load component		Load	
Window total	353 sqft	5259	Btuh
Wall total	1513 sqft	3269	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1860 sqft	1605	Btuh
Floor total		0	Btuh
Infiltration	36 cfm	748	Btuh
Internal gain		2120	Btuh
Duct gain		4383	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		17937	Btuh
Latent gain(ducts)		1261	Btuh
Latent gain(infiltration)		1241	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3302	Btuh
TOTAL HEAT GAIN		21238	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Project Title:
Lot 88 Emerald Cove
Building Type: User

Lake City, FL 32024

6/30/2020

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	16.0		14.4	230 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	13.3		14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	5.0		14.4	72 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	36.0		14.4	518 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	25.0		14.4	360 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
10	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
12	2, NFRC 0.25	Vinyl	0.36	E	20.0		14.4	288 Btuh
13	2, NFRC 0.25	Vinyl	0.36	N	72.0		14.4	1037 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
Window Total					353.3(sqft)			5088 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.55	322 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	42		3.55	148 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	23		3.55	83 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	284 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	294		3.55	1042 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	208		3.55	737 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	34		3.55	121 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	342 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	178 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	266		3.55	943 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	93		3.55	330 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
Wall Total					1514(sqft)			5373 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1860		1.0	1888 Btuh
Ceiling Total					1860(sqft)			1888Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	210.0 ft(perim.)		47.2	9912 Btuh
Floor Total					1771 sqft			9912 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32024

Project Title:
Lot 88 Emerald Cove
Building Type: User

6/30/2020

	Envelope Subtotal:						22998 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 15939	Wall Ratio 1.00	CFM= 47.9		2099 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.207)						5205 Btuh
All Zones	Sensible Subtotal All Zones						30302 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	30302 Btuh 0 Btuh 30302 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	30302 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 88 Emerald Cove

Lake City, FL 32024

6/30/2020

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		1.0ft.	1.0ft.	16.0	16.0	0.0	12	14	194	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.5ft.	13.3	13.3	0.0	12	14	161	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	0.5ft.	5.0	5.0	0.0	12	14	60	Btuh
4	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	36.0	36.0	0.0	12	14	436	Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh
6	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	25.0	0.0	25.0	12	12	302	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	45.0	0.0	45.0	12	12	544	Btuh
10	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	15.0	0.0	15.0	12	12	181	Btuh
11	2 NFRC	0.25, 0.36	No	No	W		5.5ft.	0.5ft.	20.0	12.2	7.8	12	31	389	Btuh
12	2 NFRC	0.25, 0.36	No	No	E		7.5ft.	0.5ft.	20.0	17.2	2.8	12	31	295	Btuh
13	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	0.5ft.	72.0	0.0	72.0	12	12	871	Btuh
14	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	0.5ft.	15.0	2.2	12.8	12	31	422	Btuh
	Excursion													81	Btuh
	Window Total								353 (sqft)					5259 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.0		90.7		2.3		205	Btuh			
2	Frame - Wood - Ext		0.09		13.0/0.0		41.7		2.3		94	Btuh			
3	Frame - Wood - Ext		0.09		13.0/0.0		23.3		2.3		53	Btuh			
4	Frame - Wood - Ext		0.09		13.0/0.0		80.0		2.3		181	Btuh			
5	Frame - Wood - Ext		0.09		13.0/0.0		293.5		2.3		664	Btuh			
6	Frame - Wood - Ext		0.09		13.0/0.0		207.5		2.3		470	Btuh			
7	Frame - Wood - Ext		0.09		13.0/0.0		34.0		2.3		77	Btuh			
8	Frame - Wood - Ext		0.09		13.0/0.0		60.0		2.3		136	Btuh			
9	Frame - Wood - Ext		0.09		13.0/0.0		96.3		2.3		218	Btuh			
10	Frame - Wood - Ext		0.09		13.0/0.0		50.0		2.3		113	Btuh			
11	Frame - Wood - Ext		0.09		13.0/0.0		265.5		2.3		601	Btuh			
12	Frame - Wood - Adj		0.09		13.0/0.0		93.0		1.7		157	Btuh			
13	Frame - Wood - Adj		0.09		13.0/0.0		178.0		1.7		300	Btuh			
	Wall Total							1513 (sqft)				3269 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		20.0		13.8		276	Btuh							
2	Insulated - Garage		20.0		13.8		276	Btuh							
	Door Total							40 (sqft)				552 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented AtticLight/Shingle/RB		0.025		38.0/0.0		1860.0		0.86		1605	Btuh			
	Ceiling Total							1860 (sqft)				1605 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		1771 (ft-perimeter)		0.0		0	Btuh					
	Floor Total							1771.0 (sqft)				0 Btuh			
	Envelope Subtotal:											10686 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 88 Emerald Cove

Lake City, FL 32024

6/30/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 15939	Wall Ratio 1	CFM= 35.9	Load 748 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	1200	Load 2120 Btuh
	Sensible Envelope Load:					13553 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.323)					4383 Btuh
	Sensible Load All Zones					17937 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 88 Emerald Cove

Lake City, FL 32024

6/30/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13553 Btuh
	Sensible Duct Load	4383 Btuh
	Total Sensible Zone Loads	17937 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17937 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1241 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1261 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3302 Btuh
	TOTAL GAIN	21238 Btuh

EQUIPMENT

1. Central Unit	#	21157 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