

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 84 Emerald Cove Ph 1

Lake City, FL 32025

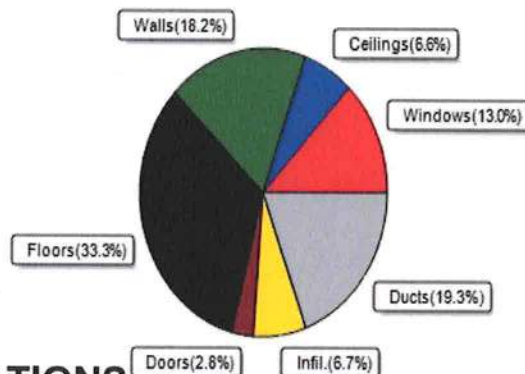
5/25/2021

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	26550 Btuh	Total cooling load calculation	20305 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 26550	Sensible (SHR = 0.70)	86.6 14214
Heat Pump + Auxiliary(0.0kW)	100.0 26550	Latent	156.5 6092
		Total (Electric Heat Pump)	100.0 20305

WINTER CALCULATIONS

Winter Heating Load (for 1653 sqft)

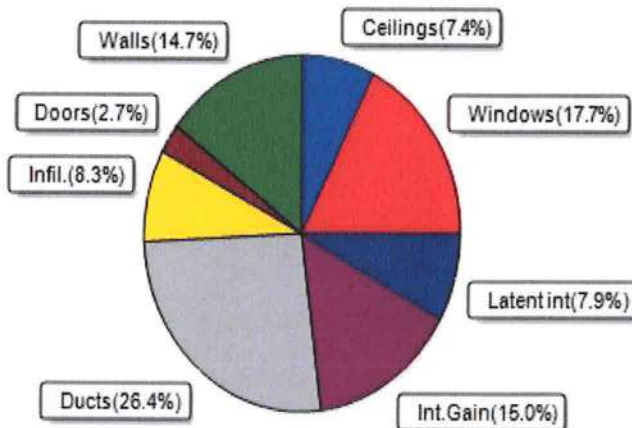
Load component		Load	
Window total	240 sqft	3456	Btuh
Wall total	1361 sqft	4832	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1735 sqft	1761	Btuh
Floor total	1653 sqft	8850	Btuh
Infiltration	41 cfm	1784	Btuh
Duct loss		5130	Btuh
Subtotal		26550	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		26550	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1653 sqft)

Load component		Load	
Window total	240 sqft	3588	Btuh
Wall total	1361 sqft	2985	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1735 sqft	1497	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	636	Btuh
Internal gain		3040	Btuh
Duct gain		4116	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16414	Btuh
Latent gain(ducts)		1237	Btuh
Latent gain(infiltration)		1055	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		3892	Btuh
TOTAL HEAT GAIN		20305	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE:

5/25/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Project Title:
Lot 84 Emerald Cove Ph 1
Building Type: User

Lake City, FL 32025

5/25/2021

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	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	16.0		14.4	230 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	20.0		14.4	288 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
6	2, NFRC 0.25	TIM	0.36	E	20.0		14.4	288 Btuh
7	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
Window Total					240.0(sqft)			3456 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	59		3.55	208 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	150		3.55	533 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	252		3.55	893 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	86		3.55	304 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	320 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	43		3.55	153 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	325 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	277		3.55	982 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	165		3.55	584 Btuh
Wall Total					1361(sqft)			4832 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	1735		1.0	1761 Btuh
Ceiling Total					1735(sqft)			1761Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	187.5 ft(perim.)		47.2	8850 Btuh
Floor Total					1653 sqft			8850 Btuh
Envelope Subtotal:								19635 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	14877	1.00	40.7		1784 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32025

Project Title:
Lot 84 Emerald Cove Ph 1
Building Type: User

5/25/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.240)	5130 Btuh
All Zones	Sensible Subtotal All Zones	26550 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	26550 Btuh 0 Btuh 26550 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	26550 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 84 Emerald Cove Ph 1

Lake City, FL 32025

5/25/2021

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		1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		5.5ft.	1.0ft.	16.0	16.0	0.0	12	14	194	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544	Btuh
6	2 NFRC	0.25, 0.36	No	No	E		9.5ft.	1.0ft.	20.0	20.0	0.0	12	31	242	Btuh
7	2 NFRC	0.25, 0.36	No	No	E		9.5ft.	1.0ft.	15.0	15.0	0.0	12	31	181	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450	Btuh
Window Total									240 (sqft)					3588 Btuh	
Walls	Type					U-Value	R-Value	Area(sqft)		HTM		Load			
							Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	58.5		2.3		132	Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0	150.0		2.3		340	Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0	251.5		2.3		569	Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	85.5		2.3		194	Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	90.0		2.3		204	Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	43.0		2.3		97	Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	72.0		2.3		163	Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	78.0		2.3		177	Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0	91.5		2.3		207	Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0	276.5		2.3		626	Btuh	
11	Frame - Wood - Adj						0.09	13.0/0.0	164.5		1.7		277	Btuh	
Wall Total									1361 (sqft)					2985 Btuh	
Doors	Type					U-Value	R-Value	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 Attic/Light/Shingle/RB						0.025	38.0/0.0	1735.0		0.86		1497	Btuh	
Ceiling Total									1735 (sqft)					1497 Btuh	
Floors	Type					U-Value	R-Value	Size		HTM		Load			
1	Slab On Grade								1653 (ft-perimeter)		0.0		0	Btuh	
Floor Total									1653.0 (sqft)					0 Btuh	
Envelope Subtotal:													8623 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 84 Emerald Cove Ph 1

Lake City, FL 32025

5/25/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 14877	Wall Ratio 1	CFM= 30.6	Load 636 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
	Sensible Envelope Load:					12298 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.335)					4116 Btuh
	Sensible Load All Zones					16414 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 84 Emerald Cove Ph 1

Lake City, FL 32025

5/25/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12298 Btuh
	Sensible Duct Load	4116 Btuh
	Total Sensible Zone Loads	16414 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16414 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1055 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1237 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3892 Btuh
	TOTAL GAIN	20305 Btuh

EQUIPMENT

1. Central Unit	#	20305 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