

Residential System Sizing Calculation

Summary

N/A

Project Title:

Lot 64 The Oaks Of Lake City

Lake City, FL 32024

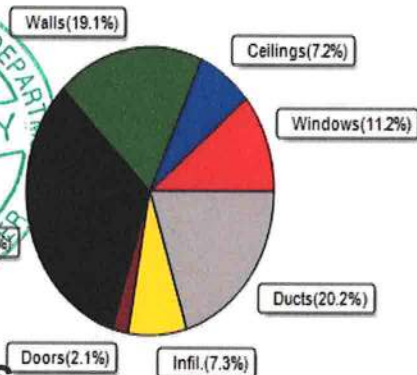
4/15/2021

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	34981 Btuh	Total cooling load calculation	25803 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 34981	Sensible (SHR = 0.70)	86.2 17959
Heat Pump + Auxiliary(0.0kW)	100.0 34981	Latent	154.9 7697
		Total (Electric Heat Pump)	99.4 25655

WINTER CALCULATIONS

Winter Heating Load (for 2378 sqft)

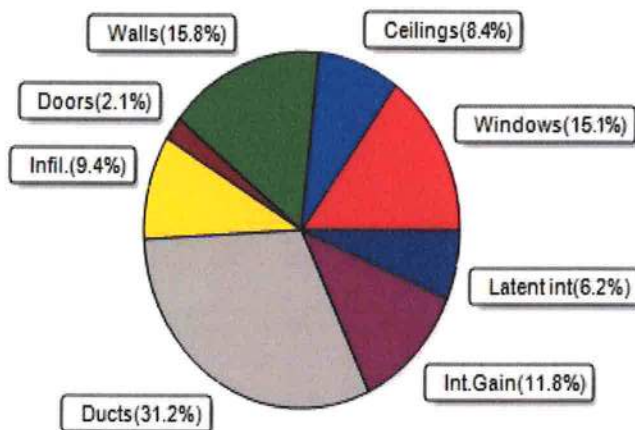
Load component		Load	
Window total	271 sqft	3902	Btuh
Wall total	1881 sqft	6678	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	2497 sqft	2535	Btuh
Floor total	2378 sqft	11488	Btuh
Infiltration	59 cfm	2567	Btuh
Duct loss		7075	Btuh
Subtotal		34981	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		34981	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2378 sqft)

Load component		Load	
Window total	271 sqft	3900	Btuh
Wall total	1881 sqft	4085	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	2497 sqft	2155	Btuh
Floor total		0	Btuh
Infiltration	44 cfm	914	Btuh
Internal gain		3040	Btuh
Duct gain		6188	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		20835	Btuh
Latent gain(ducts)		1851	Btuh
Latent gain(infiltration)		1517	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		4968	Btuh
TOTAL HEAT GAIN		25803	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

4/16/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32024

Project Title:
Lot 64 The Oaks Of Lake City
Building Type: User

4/15/2021

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	15.0		14.4	216 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	36.0		14.4	518 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	6.0		14.4	86 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	3.0		14.4	43 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	16.0		14.4	230 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	72.0		14.4	1037 Btuh
8	2, NFRC 0.25	Vinyl	0.36	W	24.0		14.4	346 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	72.0		14.4	1037 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	6.0		14.4	86 Btuh
Window Total					271.0(sqft)			3902 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.55	367 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	157		3.55	559 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	282 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	90		3.55	320 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	208		3.55	738 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	217		3.55	769 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	299		3.55	1060 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	56		3.55	199 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	113		3.55	401 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	284 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.55	367 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	375		3.55	1331 Btuh
Wall Total					1881(sqft)			6678 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	2497		1.0	2535 Btuh
Ceiling Total					2497(sqft)			2535Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	243.4 ft(perim.)		47.2	11488 Btuh
Floor Total					2378 sqft			11488 Btuh
	Envelope Subtotal:							25340 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	21402	1.00	58.6		2567 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32024

Project Title:
Lot 64 The Oaks Of Lake City
Building Type: User

4/15/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.254)	7075 Btuh
All Zones	Sensible Subtotal All Zones	34981 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	34981 Btuh 0 Btuh 34981 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	34981 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 64 The Oaks Of Lake City

Lake City, FL 32024

4/15/2021

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.	15.0	15.0	0.0	12	14	181	Btuh		
2	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.5ft.	36.0	36.0	0.0	12	14	436	Btuh		
3	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	6.0	6.0	0.0	12	14	73	Btuh		
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	3.0	0.7	2.3	12	31	79	Btuh		
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	16.0	1.0	15.0	12	31	477	Btuh		
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	2.5ft.	6.0	0.0	6.0	12	12	73	Btuh		
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	72.0	0.0	72.0	12	12	871	Btuh		
8	2 NFRC	0.25, 0.36	No	No	W		10.5f	1.5ft.	24.0	21.6	2.4	12	31	335	Btuh		
9	2 NFRC	0.25, 0.36	No	No	N		12.5f	1.0ft.	72.0	0.0	72.0	12	12	871	Btuh		
10	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh		
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh		
	Excursion														147	Btuh	
	Window Total								271 (sqft)							3900	Btuh
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load			
								Cav/Sheath									
	1	Frame - Wood - Ext					0.09	13.0/0.0	103.5			2.3		234	Btuh		
	2	Frame - Wood - Ext					0.09	13.0/0.0	157.3			2.3		356	Btuh		
	3	Frame - Wood - Ext					0.09	13.0/0.0	79.5			2.3		180	Btuh		
	4	Frame - Wood - Adj					0.09	13.0/0.0	90.0			1.7		152	Btuh		
	5	Frame - Wood - Adj					0.09	13.0/0.0	208.0			1.7		351	Btuh		
	6	Frame - Wood - Ext					0.09	13.0/0.0	216.5			2.3		490	Btuh		
	7	Frame - Wood - Ext					0.09	13.0/0.0	298.7			2.3		676	Btuh		
	8	Frame - Wood - Ext					0.09	13.0/0.0	56.0			2.3		127	Btuh		
	9	Frame - Wood - Ext					0.09	13.0/0.0	113.0			2.3		256	Btuh		
	10	Frame - Wood - Ext					0.09	13.0/0.0	80.0			2.3		181	Btuh		
	11	Frame - Wood - Ext					0.09	13.0/0.0	103.5			2.3		234	Btuh		
	12	Frame - Wood - Ext					0.09	13.0/0.0	375.0			2.3		849	Btuh		
	Wall Total								1881 (sqft)						4085	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	2497.0			0.86		2155	Btuh		
		Ceiling Total								2497 (sqft)						2155	Btuh
Floors	Type							R-Value	Size			HTM		Load			
	1	Slab On Grade						0.0	2378 (ft-perimeter)			0.0		0	Btuh		
		Floor Total								2378.0 (sqft)						0	Btuh
	Envelope Subtotal:													10692		Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 64 The Oaks Of Lake City

Lake City, FL 32024

4/15/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 21402	Wall Ratio 1	CFM= 44.0	Load 914 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
					Sensible Envelope Load:	14646 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.423)	6188 Btuh
					Sensible Load All Zones	20835 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate: FL_GAINESVILLE_REGIONAL_A
Lot 64 The Oaks Of Lake City

Lake City, FL 32024

4/15/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14646 Btuh
	Sensible Duct Load	6188 Btuh
	Total Sensible Zone Loads	20835 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20835 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1517 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1851 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4968 Btuh
	TOTAL GAIN	25803 Btuh

EQUIPMENT

1. Central Unit	#	25655 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