

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 6 Amelia Landing

Lake City, FL 32025

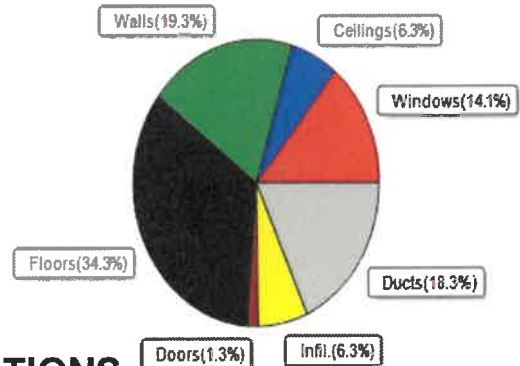
4/8/2021

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	27927 Btuh	Total cooling load calculation	22686 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 27927	Sensible (SHR = 0.70)	77.9 14971
Heat Pump + Auxiliary(0.0kW)	100.0 27927	Latent	184.7 6416
		Total (Electric Heat Pump)	94.3 21387

WINTER CALCULATIONS

Winter Heating Load (for 1638 sqft)

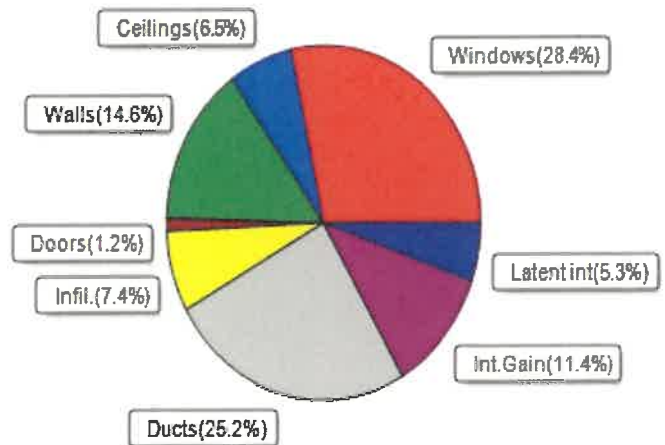
Load component		Load	
Window total	274 sqft	3946	Btuh
Wall total	1520 sqft	5395	Btuh
Door total	20 sqft	368	Btuh
Ceiling total	1720 sqft	1746	Btuh
Floor total	1638 sqft	9582	Btuh
Infiltration	40 cfm	1768	Btuh
Duct loss		5122	Btuh
Subtotal		27927	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27927	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1638 sqft)

Load component		Load	
Window total	274 sqft	6438	Btuh
Wall total	1520 sqft	3314	Btuh
Door total	20 sqft	276	Btuh
Ceiling total	1720 sqft	1484	Btuh
Floor total		0	Btuh
Infiltration	30 cfm	630	Btuh
Internal gain		2580	Btuh
Duct gain		4489	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		19212	Btuh
Latent gain(ducts)		1229	Btuh
Latent gain(infiltration)		1045	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3474	Btuh
TOTAL HEAT GAIN		22686	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

4/8/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32025

Project Title:
Lot 6 Amelia Landing
Building Type: User

4/8/2021

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	E	72.0		14.4	1037 Btuh
2	2, NFRC 0.25	TIM	0.36	E	24.0		14.4	346 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	12.0		14.4	173 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
5	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	27.0		14.4	389 Btuh
7	2, NFRC 0.25	TIM	0.36	W	48.0		14.4	691 Btuh
8	2, NFRC 0.25	Vinyl	0.36	W	36.0		14.4	518 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
10	2, NFRC 0.25	Vinyl	0.36	S	4.0		14.4	58 Btuh
Window Total					274.0(sqft)			3946 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	204		3.55	724 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	47		3.55	166 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	69		3.55	245 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	48		3.55	170 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	169		3.55	600 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	204		3.55	724 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	162		3.55	575 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.55	85 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	69		3.55	245 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	21		3.55	75 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	48		3.55	170 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	330 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	299		3.55	1062 Btuh
Wall Total					1520(sqft)			5395 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					20(sqft)			368Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value		Area	X	HTM=	Load
1	Vented Attic/L/Shing	(0.025)	38.0/0.0		1720		1.0	1746 Btuh
Ceiling Total					1720(sqft)			1746Btuh
Floors	Type	Ueff.	R-Value		Size	X	HTM=	Load
1	Slab On Grade	(1.180)	0.0		203.0 ft(perim.)		47.2	9582 Btuh
Floor Total					1638 sqft			9582 Btuh
Envelope Subtotal:								21037 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	14742	1.00	40.4		1768 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32025

Project Title:
Lot 6 Amelia Landing
Building Type: User

4/8/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.225)	5122 Btuh
All Zones	Sensible Subtotal All Zones	27927 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27927 Btuh 0 Btuh 27927 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27927 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 6 Amelia Landing

Lake City, FL 32025

4/8/2021

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	E		6.0ft.	1.0ft.	72.0	47.8	24.2	12	31	1328 Btuh
2	2 NFRC	0.25, 0.36	No	No	E		6.0ft.	1.0ft.	24.0	11.9	12.1	12	31	518 Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	12.0	1.0	11.0	12	31	353 Btuh
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73 Btuh
5	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901 Btuh
6	2 NFRC	0.25, 0.36	No	No	W		7.5ft.	1.0ft.	27.0	27.0	0.0	12	31	327 Btuh
7	2 NFRC	0.25, 0.36	No	No	W		9.5ft.	1.0ft.	48.0	41.3	6.7	12	31	707 Btuh
8	2 NFRC	0.25, 0.36	No	No	W		9.5ft.	1.0ft.	36.0	36.0	0.0	12	31	436 Btuh
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450 Btuh
10	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	4.0	4.0	0.0	12	14	48 Btuh
	Excursion													1299 Btuh
	Window Total								274 (sqft)					6438 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Frame - Wood - Ext	0.09		13.0/0.0		204.0		2.3	462 Btuh					
2	Frame - Wood - Ext	0.09		13.0/0.0		46.7		2.3	106 Btuh					
3	Frame - Wood - Ext	0.09		13.0/0.0		69.0		2.3	156 Btuh					
4	Frame - Wood - Adj	0.09		13.0/0.0		48.0		1.7	81 Btuh					
5	Frame - Wood - Adj	0.09		13.0/0.0		169.0		1.7	285 Btuh					
6	Frame - Wood - Ext	0.09		13.0/0.0		204.0		2.3	462 Btuh					
7	Frame - Wood - Ext	0.09		13.0/0.0		162.0		2.3	367 Btuh					
8	Frame - Wood - Ext	0.09		13.0/0.0		24.0		2.3	54 Btuh					
9	Frame - Wood - Ext	0.09		13.0/0.0		69.0		2.3	156 Btuh					
10	Frame - Wood - Ext	0.09		13.0/0.0		21.0		2.3	48 Btuh					
11	Frame - Wood - Ext	0.09		13.0/0.0		63.0		2.3	143 Btuh					
12	Frame - Wood - Ext	0.09		13.0/0.0		48.0		2.3	109 Btuh					
13	Frame - Wood - Ext	0.09		13.0/0.0		93.0		2.3	210 Btuh					
14	Frame - Wood - Ext	0.09		13.0/0.0		299.0		2.3	677 Btuh					
	Wall Total								1520 (sqft)				3314 Btuh	
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load				
1	Insulated - Garage					20.0		13.8	276 Btuh					
	Door Total								20 (sqft)	276 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		1720.0		0.86	1484 Btuh					
	Ceiling Total								1720 (sqft)	1484 Btuh				
Floors	Type	U-Value		R-Value		Size		HTM		Load				
1	Slab On Grade			0.0		1638 (ft-perimeter)		0.0	0 Btuh					
	Floor Total								1638.0 (sqft)	0 Btuh				
	Envelope Subtotal:									11513 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 6 Amelia Landing

Lake City, FL 32025

4/8/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 14742	Wall Ratio 1	CFM= 30.3	Load 630 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
	Sensible Envelope Load:					14723 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.305)					4489 Btuh
	Sensible Load All Zones					19212 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 6 Amelia Landing

Lake City, FL 32025

4/8/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14723 Btuh
	Sensible Duct Load	4489 Btuh
	Total Sensible Zone Loads	19212 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19212 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1045 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1229 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3474 Btuh
	TOTAL GAIN	22686 Btuh

EQUIPMENT

1. Central Unit	#	21387 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