

Residential System Sizing Calculation

31

Summary

N/A

Project Title:
Lot 14 Amelia Landing 1

Lake City, FL 32025

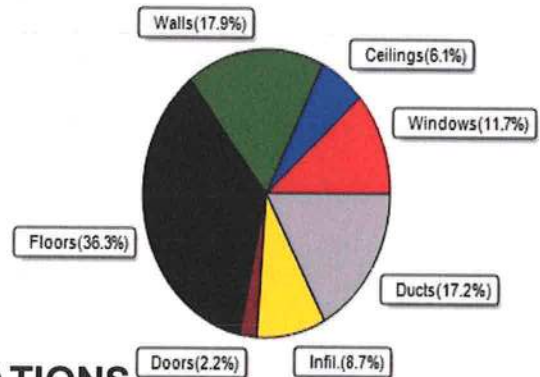
2/26/2024

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%/Cu)33	F	Summer design temperature(MJ8 99%/Cu)99	F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	24 F
Total heating load calculation	30341	Total cooling load calculation	25939
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	107.8 32700	Sensible (SHR = 0.75)	81.2 17842
Heat Pump + Auxiliary(0.0kW)	107.8 32700	Latent	149.8 5947
		Total (Electric Heat Pump)	91.7 23789

WINTER CALCULATIONS

Winter Heating Load (for 1880 sqft)

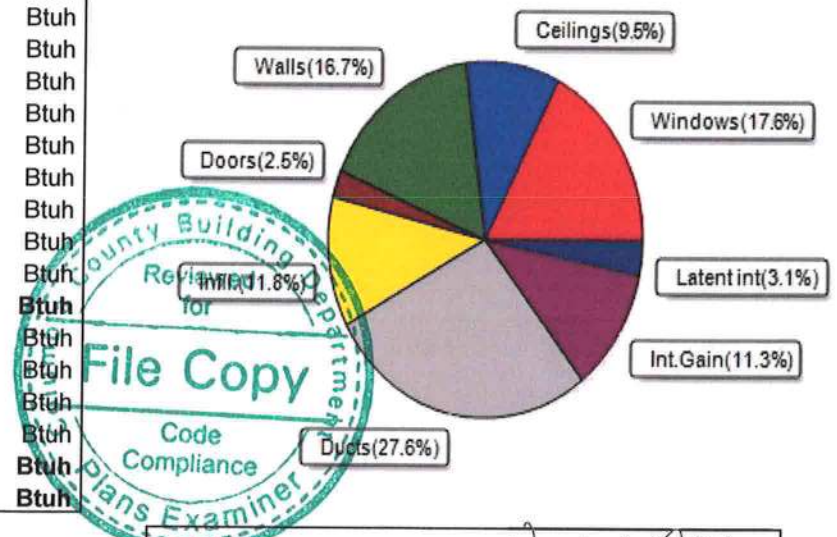
Load component		Load	
Window total	266 sqft	3536	Btuh
Wall total	1654 sqft	5430	Btuh
Door total	40 sqft	681	Btuh
Ceiling total	1974 sqft	1854	Btuh
Floor total	1880 sqft	11002	Btuh
Infiltration	65 cfm	2628	Btuh
Duct loss		5210	Btuh
Subtotal		30341	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
TOTAL HEAT LOSS		30341	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1880 sqft)

Load component		Load	
Window total	266 sqft	4573	Btuh
Wall total	1654 sqft	4320	Btuh
Door total	40 sqft	644	Btuh
Ceiling total	1974 sqft	2455	Btuh
Floor total		0	Btuh
Infiltration	49 cfm	1278	Btuh
Internal gain		2920	Btuh
Duct gain		5779	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		21969	Btuh
Latent gain(ducts)		1392	Btuh
Latent gain(infiltration)		1778	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3970	Btuh
TOTAL HEAT GAIN		25939	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 3 / 1 / 2024

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32025

Project Title:
Lot 14 Amelia Landing 1
Building Type: User

2/26/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%/Cu)
Winter Setpoint: 70 °F (Required Manual J default)

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		13.3	213 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	3.0		13.3	40 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	36.0		13.3	480 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	15.0		13.3	200 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	15.0		13.3	200 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	62.5		13.3	833 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	20.0		13.3	266 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	72.0		13.3	959 Btuh
9	2, NFRC 0.25	Vinyl	0.36	E	20.0		13.3	266 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	6.0		13.3	80 Btuh
Window Total					265.5(sqft)			3536 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	113		3.28	371 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	40		3.28	132 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	93		3.28	305 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.28	585 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	258		3.28	847 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	281		3.28	923 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.28	148 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.28	197 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.28	305 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.28	197 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	332		3.28	1089 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	101		3.28	331 Btuh
Wall Total					1653(sqft)			5430 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
2	Insulated - Garage, n		(0.460)		20		17.0	340 Btuh
Door Total					40(sqft)			681Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	1974		0.94	1854 Btuh
Ceiling Total					1974(sqft)			1854Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	252.0 ft(perim.)		43.7	11002 Btuh
Floor Total					1880 sqft			11002 Btuh
Envelope Subtotal:								22504 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.23	16920	1.00	64.9		2628 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32025

Project Title:
Lot 14 Amelia Landing 1
Building Type: User

2/26/2024

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.207)	5210 Btuh
All Zones	Sensible Subtotal All Zones	30341 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	30341 Btuh 0 Btuh 30341 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32700 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 14 Amelia Landing 1

Lake City, FL 32025

2/26/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(MJ8 99%/Cu)
Summer Setpoint: 75 °F (Required Manual J default)

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	14	16	222	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	0.5ft.	3.0	3.0	0.0	14	16	42	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	36.0	36.0	0.0	14	16	500	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	15.0	0.7	14.3	14	33	477	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	14	14	208	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	62.5	0.0	62.5	14	14	869	Btuh
7	2 NFRC	0.25, 0.36	No	No	W		6.0ft.	1.0ft.	20.0	11.9	8.1	14	33	430	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	72.0	0.0	72.0	14	14	1001	Btuh
9	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	20.0	1.0	19.0	14	33	636	Btuh
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	14	33	187	Btuh
Window Total									266 (sqft)					4573 Btuh	
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	113.0			2.7		306 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0	40.3			2.7		109 Btuh	
3	Frame - Wood - Adj						0.09	13.0/0.0	93.0			2.1		198 Btuh	
4	Frame - Wood - Adj						0.09	13.0/0.0	178.0			2.1		379 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	258.0			2.7		698 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	281.0			2.7		761 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	45.0			2.7		122 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	60.0			2.7		162 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0	93.0			2.7		252 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0	60.0			2.7		162 Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.0	331.5			2.7		897 Btuh	
12	Frame - Wood - Ext						0.09	13.0/0.0	100.7			2.7		273 Btuh	
Wall Total									1654 (sqft)					4320 Btuh	
Doors	Type					Area (sqft)			HTM		Load				
1	Insulated - Exterior						20.0			16.1		322 Btuh			
2	Insulated - Garage						20.0			16.1		322 Btuh			
Door Total									40 (sqft)					644 Btuh	
Ceilings	Type/Color/Surface					U-Value	R-Value	Area(sqft)			HTM		Load		
1	Vented Attic/DarkShingle/RB						0.025	38.0/0.0	1974.0			1.24		2455 Btuh	
Ceiling Total									1974 (sqft)					2455 Btuh	
Floors	Type					R-Value		Size			HTM		Load		
1	Slab On Grade						0.0		1880 (ft-perimeter)			0.0		0 Btuh	
Floor Total									1880.0 (sqft)					0 Btuh	
Envelope Subtotal:														11992 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 14 Amelia Landing 1

Lake City, FL 32025

2/26/2024

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 16920	Wall Ratio 1	CFM= 48.7	Load 1278 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	2000	Load 2920 Btuh
					Sensible Envelope Load:	16190 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.357)	5779 Btuh
					Sensible Load All Zones	21969 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 14 Amelia Landing 1

Lake City, FL 32025

2/26/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16190 Btuh
	Sensible Duct Load	5779 Btuh
	Total Sensible Zone Loads	21969 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21969 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	1778 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1392 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3970 Btuh
	TOTAL GAIN	25939 Btuh

EQUIPMENT

1. Central Unit	#	23789 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