

Residential System Sizing Calculation

Summary

312 Legacy Glen
Lake City, FL 32025

Project Title:
Jon & Ashley Morris

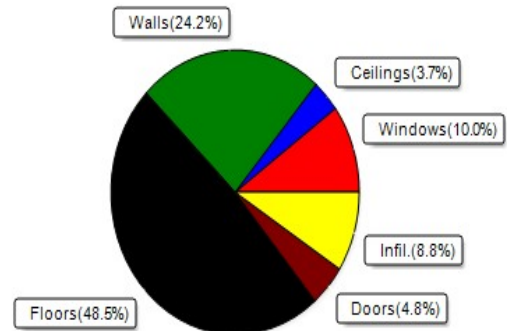
7/6/2021

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			28110	Btuh	
Total cooling load calculation			17424	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	85.4	24000	Sensible (SHR = 0.85)	138.2	20400
Heat Pump + Auxiliary(0.0kW)	85.4	24000	Latent	135.1	3600
			Total (Electric Heat Pump)	137.7	24000

WINTER CALCULATIONS

Winter Heating Load (for 2296 sqft)

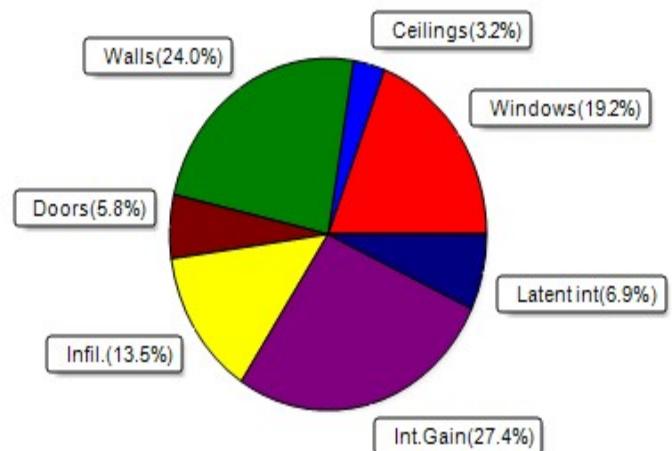
Load component	Load		
Window total	270	sqft	2803 Btuh
Wall total	1975	sqft	6811 Btuh
Door total	84	sqft	1344 Btuh
Ceiling total	2296	sqft	1033 Btuh
Floor total	2296	sqft	13641 Btuh
Infiltration	57	cfm	2478 Btuh
Duct loss			0 Btuh
Subtotal			28110 Btuh
Ventilation	0	cfm	0 Btuh
TOTAL HEAT LOSS			28110 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2296 sqft)

Load component	Load		
Window total	270	sqft	3342 Btuh
Wall total	1975	sqft	4183 Btuh
Door total	84	sqft	1008 Btuh
Ceiling total	2296	sqft	563 Btuh
Floor total			0 Btuh
Infiltration	42	cfm	883 Btuh
Internal gain			4780 Btuh
Duct gain			0 Btuh
Sens. Ventilation	0	cfm	0 Btuh
Blower Load			0 Btuh
Total sensible gain			14759 Btuh
Latent gain(ducts)			0 Btuh
Latent gain(infiltration)			1465 Btuh
Latent gain(ventilation)			0 Btuh
Latent gain(internal/occupants/other)			1200 Btuh
Total latent gain			2665 Btuh
TOTAL HEAT GAIN			17424 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

7-6-21

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

312 Legacy Glen
Lake City, FL 32025

Project Title:
Jon & Ashley Morris

7/6/2021

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, 0.26	No	No	S		1.5ft.	2.3ft.	12.0	12.0	0.0	10	12	122	Btuh
2	2 NFRC	0.25, 0.26	No	No	S		1.5ft.	2.3ft.	30.0	30.0	0.0	10	12	306	Btuh
3	2 NFRC	0.25, 0.26	No	No	S		11.2f	2.3ft.	16.0	16.0	0.0	10	12	163	Btuh
4	2 NFRC	0.25, 0.26	No	No	S		13.5f	2.3ft.	54.0	54.0	0.0	10	12	551	Btuh
5	2 NFRC	0.25, 0.26	No	No	S		1.5ft.	2.3ft.	30.0	30.0	0.0	10	12	306	Btuh
6	2 NFRC	0.25, 0.26	No	No	W		1.5ft.	2.3ft.	3.5	0.0	3.5	10	29	102	Btuh
7	2 NFRC	0.25, 0.26	No	No	N		1.5ft.	2.3ft.	30.0	0.0	30.0	10	10	306	Btuh
8	2 NFRC	0.25, 0.26	No	No	N		1.5ft.	2.3ft.	30.0	0.0	30.0	10	10	306	Btuh
9	2 NFRC	0.25, 0.26	No	No	N		7.8ft.	2.3ft.	36.0	0.0	36.0	10	10	367	Btuh
10	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	8.0	0.0	8.0	10	29	232	Btuh
11	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	20.0	0.0	20.0	10	29	581	Btuh
	Window Total								270 (sqft)					3342 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.6		171.0		2.2		376 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.6		156.0		2.2		343 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.6		62.0		2.2		136 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.6		21.0		2.2		46 Btuh				
5	Frame - Wood - Ext		0.09		13.0/0.6		119.3		2.2		262 Btuh				
6	Frame - Wood - Ext		0.09		13.0/0.6		114.0		2.2		251 Btuh				
7	Frame - Wood - Ext		0.09		13.0/0.6		274.0		2.2		602 Btuh				
8	Frame - Wood - Ext		0.09		13.0/0.6		114.0		2.2		251 Btuh				
9	Frame - Wood - Ext		0.09		13.0/0.6		52.0		2.2		114 Btuh				
10	Frame - Wood - Ext		0.09		13.0/0.6		130.3		2.2		287 Btuh				
11	Frame - Wood - Ext		0.09		13.0/0.6		75.8		2.2		167 Btuh				
12	Frame - Wood - Ext		0.09		13.0/0.6		62.7		2.2		138 Btuh				
13	Frame - Wood - Ext		0.09		13.0/0.6		69.0		2.2		152 Btuh				
14	Frame - Wood - Ext		0.09		13.0/0.6		73.0		2.2		160 Btuh				
15	Frame - Wood - Ext		0.09		13.0/0.6		18.0		2.2		40 Btuh				
16	Frame - Wood - Ext		0.09		13.0/0.6		179.0		2.2		394 Btuh				
17	Frame - Wood - Adj		0.09		13.0/0.6		284.0		1.6		465 Btuh				
	Wall Total								1975 (sqft)			4183 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		40.0		12.0	480 Btuh									
2	Insulated - Exterior		24.0		12.0	288 Btuh									
3	Insulated - Exterior		20.0		12.0	240 Btuh									
	Door Total								84 (sqft)			1008 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Cath/Sngl Assem/Light/Shingle		0.011		44.0/44.0		2296.0		0.25		563 Btuh				
	Ceiling Total								2296 (sqft)			563 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		2296 (ft-perimeter)		0.0		0 Btuh						
	Floor Total								2296.0 (sqft)			0 Btuh			
	Envelope Subtotal:											9096 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

312 Legacy Glen
Lake City, FL 32025

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Jon & Ashley Morris

7/6/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 20664	Wall Ratio 1	CFM= 42.4	Load 883 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	3400	Load 4780 Btuh
					Sensible Envelope Load:	14759 Btuh
Duct load	Extremelysealed, Supply(R6.0-Cond), Return(R6.0-Cond) (DGM of 0.000)					0 Btuh
					Sensible Load All Zones	14759 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

312 Legacy Glen
Lake City, FL 32025

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Jon & Ashley Morris

7/6/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14759 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	14759 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14759 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1465 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2665 Btuh
	TOTAL GAIN	17424 Btuh

EQUIPMENT

1. Central Unit	#	24000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

312 Legacy Glen
Lake City, FL 32025

Project Title:
Jon & Ashley Morris
Building Type: User

7/6/2021

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	0.26	S	12.0		10.4	125 Btuh
2	2, NFRC 0.25	Vinyl	0.26	S	30.0		10.4	312 Btuh
3	2, NFRC 0.25	Vinyl	0.26	S	16.0		10.4	166 Btuh
4	2, NFRC 0.25	Vinyl	0.26	S	54.0		10.4	562 Btuh
5	2, NFRC 0.25	Vinyl	0.26	S	30.0		10.4	312 Btuh
6	2, NFRC 0.25	Vinyl	0.26	W	3.5		10.4	36 Btuh
7	2, NFRC 0.25	Vinyl	0.26	N	30.0		10.4	312 Btuh
8	2, NFRC 0.25	Vinyl	0.26	N	30.0		10.4	312 Btuh
9	2, NFRC 0.25	Vinyl	0.26	N	36.0		10.4	374 Btuh
10	2, NFRC 0.25	Vinyl	0.26	E	8.0		10.4	83 Btuh
11	2, NFRC 0.25	Vinyl	0.26	E	20.0		10.4	208 Btuh
Window Total					269.5(sqft)			2803 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	171		3.45	590 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	156		3.45	538 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	62		3.45	214 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	21		3.45	72 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	119		3.45	412 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	114		3.45	393 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	274		3.45	945 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	114		3.45	393 Btuh
9	Frame - Wood	- Ext	(0.086)	13.0/0.6	52		3.45	179 Btuh
10	Frame - Wood	- Ext	(0.086)	13.0/0.6	130		3.45	449 Btuh
11	Frame - Wood	- Ext	(0.086)	13.0/0.6	76		3.45	262 Btuh
12	Frame - Wood	- Ext	(0.086)	13.0/0.6	63		3.45	216 Btuh
13	Frame - Wood	- Ext	(0.086)	13.0/0.6	69		3.45	238 Btuh
14	Frame - Wood	- Ext	(0.086)	13.0/0.6	73		3.45	252 Btuh
15	Frame - Wood	- Ext	(0.086)	13.0/0.6	18		3.45	62 Btuh
16	Frame - Wood	- Ext	(0.086)	13.0/0.6	179		3.45	617 Btuh
17	Frame - Wood	- Adj	(0.086)	13.0/0.6	284		3.45	979 Btuh
Wall Total					1975(sqft)			6811 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
2	Insulated - Exterior, n		(0.400)		24		16.0	384 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
Door Total					84(sqft)			1344Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Cathedral/L/Shing		(0.011)	44.0/44.0	2296		0.4	1033 Btuh
Ceiling Total					2296(sqft)			1033Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	289.0 ft(perim.)		47.2	13641 Btuh
Floor Total					2296 sqft			13641 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

312 Legacy Glen
Lake City, FL 32025

Project Title:
Jon & Ashley Morris
Building Type: User

7/6/2021

	Envelope Subtotal:	25632 Btuh
Infiltration	Type Wholehouse ACH Volume(cuft) Wall Ratio CFM= Natural 0.16 20664 1.00 56.6	2478 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones	28110 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	28110 Btuh 0 Btuh 28110 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	24000 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