

Residential System Sizing Calculation

Summary

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title:
210555 1995-Model B

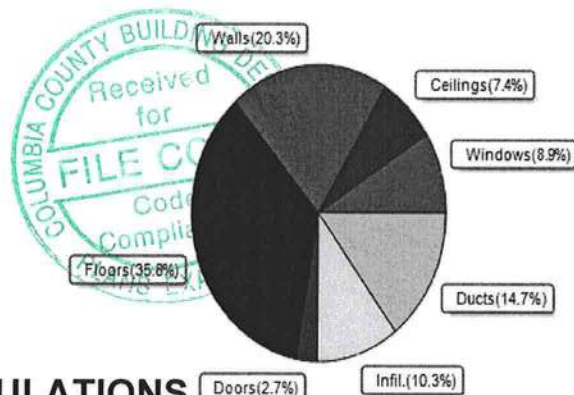
2021-04-28

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	29303 Btuh	Total cooling load calculation	25507 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	109.2 32000	Sensible (SHR = 0.75)	109.8 24000
Heat Pump + Auxiliary(0.0kW)	109.2 32000	Latent	219.0 8000
		Total (Electric Heat Pump)	125.5 32000

WINTER CALCULATIONS

Winter Heating Load (for 1995 sqft)

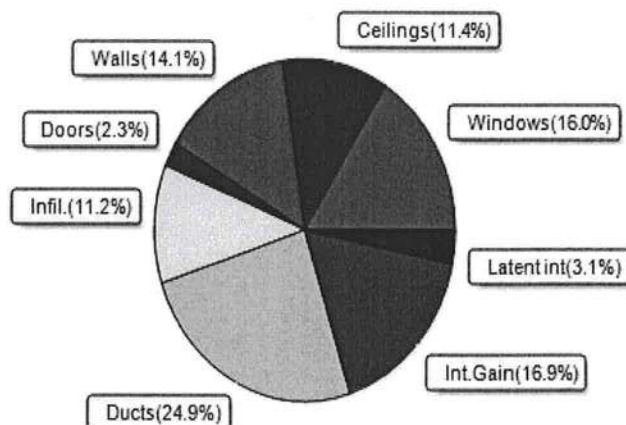
Load component		Load	
Window total	218 sqft	2612 Btuh	
Wall total	1674 sqft	5944 Btuh	
Door total	50 sqft	796 Btuh	
Ceiling total	2130 sqft	2162 Btuh	
Floor total	1995 sqft	10478 Btuh	
Infiltration	69 cfm	3015 Btuh	
Duct loss		4295 Btuh	
Subtotal		29303 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		29303 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1995 sqft)

Load component		Load	
Window total	218 sqft	4080 Btuh	
Wall total	1674 sqft	3593 Btuh	
Door total	50 sqft	597 Btuh	
Ceiling total	2130 sqft	2919 Btuh	
Floor total		0 Btuh	
Infiltration	52 cfm	1074 Btuh	
Internal gain		4320 Btuh	
Duct gain		5271 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		21855 Btuh	
Latent gain(ducts)		1070 Btuh	
Latent gain(infiltration)		1782 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		3652 Btuh	
TOTAL HEAT GAIN		25507 Btuh	



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2021-04-28

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title:
210555 1995-Model B
Building Type: User

2021-04-28

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 0.20	Metal	0.30	N	45.0		12.0	540 Btuh
2	2, NFRC 0.20	Metal	0.30	N	13.3		12.0	160 Btuh
3	2, NFRC 0.20	Metal	0.30	N	30.0		12.0	360 Btuh
4	2, NFRC 0.20	Metal	0.30	W	8.3		12.0	100 Btuh
5	2, NFRC 0.20	Metal	0.30	W	16.0		12.0	192 Btuh
6	2, NFRC 0.20	Metal	0.30	W	5.3		12.0	64 Btuh
7	2, NFRC 0.20	Metal	0.30	W	30.0		12.0	360 Btuh
8	2, NFRC 0.20	Metal	0.30	S	6.7		12.0	80 Btuh
9	2, NFRC 0.20	Metal	0.30	S	30.0		12.0	360 Btuh
10	2, NFRC 0.20	Metal	0.30	E	10.0		12.0	120 Btuh
11	2, NFRC 0.20	Metal	0.30	E	8.0		12.0	96 Btuh
12	2, NFRC 0.20	Metal	0.30	E	15.0		12.0	180 Btuh
Window Total					217.7(sqft)			2612 Btuh
Walls	Type	Ormt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	318 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	114		3.55	405 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	183		3.55	650 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	336		3.55	1194 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	156		3.55	554 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	21		3.55	75 Btuh
7	Frame - Wood	- Adj	(0.089)	13.0/0.0	22		3.55	78 Btuh
8	Frame - Wood	- Adj	(0.089)	13.0/0.0	141		3.55	501 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	23		3.55	83 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	309 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	456		3.55	1619 Btuh
Wall Total					1674(sqft)			5944 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		8		16.0	128 Btuh
2	Insulated - Garage, n		(0.400)		18		16.0	284 Btuh
3	Insulated - Exterior, n		(0.400)		24		16.0	384 Btuh
Door Total					50(sqft)			796Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/D/Shing		(0.025)	38.0/0.0	2130		1.0	2162 Btuh
Ceiling Total					2130(sqft)			2162Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	222.0 ft(perim.)		47.2	10478 Btuh
Floor Total					1995 sqft			10478 Btuh
Envelope Subtotal:								21994 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title:
210555 1995-Model B
Building Type: User

2021-04-28

Infiltration	Type Natural	Wholehouse ACH 0.23	Volume(cuft) 17955	Wall Ratio 1.00	CFM= 68.8	3015 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.172)	4295 Btuh
All Zones	Sensible Subtotal All Zones					29303 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	29303 Btuh 0 Btuh 29303 Btuh
---------------------------	--	------------------------------------

EQUIPMENT

1. Electric Heat Pump	#	32000 Btuh
-----------------------	---	------------

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

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title:
210555 1995-Model B

2021-04-28

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	0.20, 0.30	No	No	N		14.2f	1.0ft	45.0	0.0	45.0	10	19	861	Btuh
2	2 NFRC	0.20, 0.30	No	No	N		14.2f	1.0ft	13.3	0.0	13.3	10	19	255	Btuh
3	2 NFRC	0.20, 0.30	No	No	N		1.5ft	1.5ft	30.0	0.0	30.0	10	19	574	Btuh
4	2 NFRC	0.20, 0.30	No	No	W		1.5ft	0.5ft	8.3	8.3	0.0	10	20	83	Btuh
5	2 NFRC	0.20, 0.30	No	No	W		1.5ft	1.5ft	16.0	3.9	12.1	10	20	281	Btuh
6	2 NFRC	0.20, 0.30	No	No	W		1.5ft	1.5ft	5.3	3.9	1.5	10	20	68	Btuh
7	2 NFRC	0.20, 0.30	No	No	W		1.5ft	1.5ft	30.0	5.8	24.2	10	20	542	Btuh
8	2 NFRC	0.20, 0.30	No	No	S		12.5f	1.0ft	6.7	6.7	0.0	10	20	66	Btuh
9	2 NFRC	0.20, 0.30	No	No	S		7.5ft	1.0ft	30.0	30.0	0.0	10	20	297	Btuh
10	2 NFRC	0.20, 0.30	No	No	E		1.5ft	1.5ft	10.0	0.0	10.0	10	19	191	Btuh
11	2 NFRC	0.20, 0.30	No	No	E		1.5ft	4.8ft	8.0	0.0	8.0	10	19	153	Btuh
12	2 NFRC	0.20, 0.30	No	No	E		1.5ft	1.5ft	15.0	0.0	15.0	10	19	287	Btuh
	Excursion													421	Btuh
	Window Total								218 (sqft)					4080 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.0		89.7		2.3		203 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		114.0		2.3		258 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		183.0		2.3		414 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.0		336.3		2.3		761 Btuh				
5	Frame - Wood - Adj		0.09		13.0/0.0		156.0		1.7		263 Btuh				
6	Frame - Wood - Adj		0.09		13.0/0.0		21.0		1.7		35 Btuh				
7	Frame - Wood - Adj		0.09		13.0/0.0		22.0		1.7		37 Btuh				
8	Frame - Wood - Adj		0.09		13.0/0.0		141.0		1.7		238 Btuh				
9	Frame - Wood - Ext		0.09		13.0/0.0		23.3		2.3		53 Btuh				
10	Frame - Wood - Ext		0.09		13.0/0.0		45.0		2.3		102 Btuh				
11	Frame - Wood - Ext		0.09		13.0/0.0		87.0		2.3		197 Btuh				
12	Frame - Wood - Ext		0.09		13.0/0.0		456.0		2.3		1032 Btuh				
	Wall Total							1674 (sqft)				3593 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		8.0		12.0	96 Btuh									
2	Insulated - Garage		17.8		12.0	213 Btuh									
3	Insulated - Exterior		24.0		12.0	288 Btuh									
	Door Total 50 (sqft) 597 Btuh														
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/DarkShingle		0.025		38.0/0.0		2130.0		1.37		2919 Btuh				
	Ceiling Total							2130 (sqft)				2919 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		1995 (ft-perimeter)		0.0		0 Btuh						
	Floor Total							1995.0 (sqft)				0 Btuh			
Envelope Subtotal:											11190 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
210555 1995-Model B

2021-04-28

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 17955	Wall Ratio 1	CFM= 51.6	Load 1074 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	3400	Load 4320 Btuh
	Sensible Envelope Load:					16584 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.318)					5271 Btuh
	Sensible Load All Zones					21855 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 53 The Preserve
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
210555 1995-Model B

2021-04-28

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16584 Btuh
	Sensible Duct Load	5271 Btuh
	Total Sensible Zone Loads	21855 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21855 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1782 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1070 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3652 Btuh
	TOTAL GAIN	25507 Btuh

EQUIPMENT

1. Central Unit	#	32000 Btuh
-----------------	---	------------

*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