

Residential System Sizing Calculation

Summary

Aaron Simque Homes
Lot 55 The Preserve
Lake City, FL

Project Title:
210558 1995-Model A

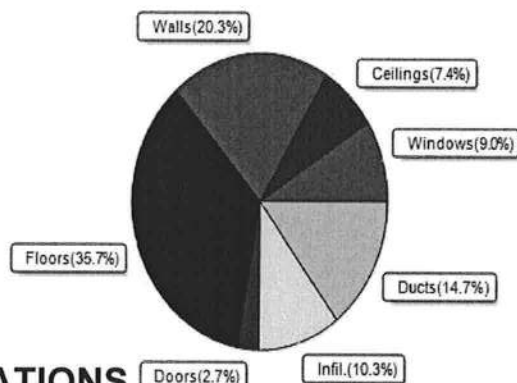
2021-04-28

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	29315	Btuh	Total cooling load calculation	25513	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)	125.4	32000

WINTER CALCULATIONS

Winter Heating Load (for 1995 sqft)

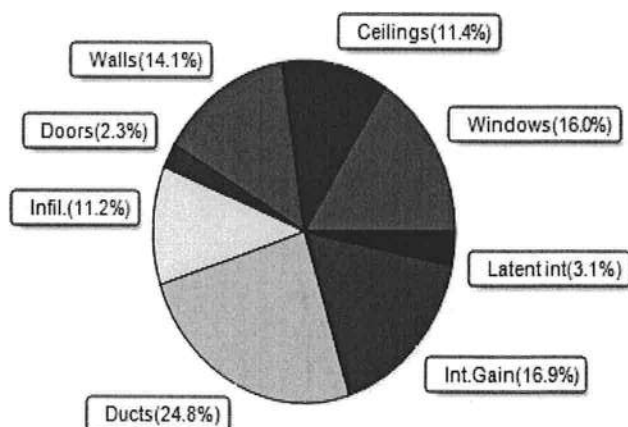
Load component			Load	
Window total	219	sqft	2628	Btuh
Wall total	1673	sqft	5940	Btuh
Door total	50	sqft	796	Btuh
Ceiling total	2130	sqft	2162	Btuh
Floor total	1995	sqft	10478	Btuh
Infiltration	69	cfm	3015	Btuh
Duct loss			4296	Btuh
Subtotal			29315	Btuh
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			29315	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1995 sqft)

Load component			Load	
Window total	219	sqft	4091	Btuh
Wall total	1673	sqft	3590	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			5269	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			21861	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			25513	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 55 The Preserve
Lake City, FL

Project Title:
210558 1995-Model A
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	8.0		12.0	96 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					219.0(sqft)			2628 Btuh
Walls	Type	Omt.	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	22		3.55	78 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					1673(sqft)			5940 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:								22005 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 55 The Preserve
Lake City, FL

Project Title:
210558 1995-Model A
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)					4296 Btuh
All Zones	Sensible Subtotal All Zones					29315 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	29315 Btuh 0 Btuh 29315 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32000 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

Aaron Simque Homes
Lot 55 The Preserve
Lake City, FL

Project Title:
210558 1995-Model A

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	8.0	8.0	0.0	10	20	79 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													418 Btuh
	Window Total								219 (sqft)					4091 Btuh
Walls	Type	U-Value					R-Value		Area(sqft)		HTM		Load	
							Cav/Sheath							
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		22.0		2.3		50 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								1673 (sqft)					3590 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:												11198 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 55 The Preserve
Lake City, FL

Project Title: 210558 1995-Model A

Climate: FL_GAINESVILLE_REGIONAL_A

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:	16592 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.318)	5269 Btuh
					Sensible Load All Zones	21861 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Aaron Simque Homes
Lot 55 The Preserve
Lake City, FL

Project Title: 210558 1995-Model A

Climate: FL_GAINESVILLE_REGIONAL_A

2021-04-28

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16592 Btuh
	Sensible Duct Load	5269 Btuh
	Total Sensible Zone Loads	21861 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21861 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	25513 Btuh

EQUIPMENT

1. Central Unit	#	32000 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