

Residential System Sizing Calculation

Summary

Camille Souza
355 Short Lane
Lake City, FL 32025

Project Title:
Souza Renovation

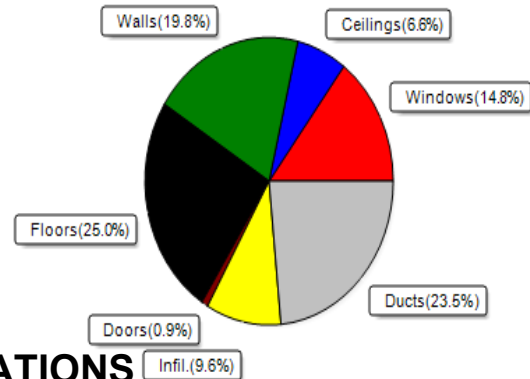
4/29/2022

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	43024 Btuh	Total cooling load calculation	37522 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	84.2 36216	Sensible (SHR = 0.70)	58.1 17467
Heat Pump + Auxiliary(0.0kW)	84.2 36216	Latent	100.4 7486
		Total (Electric Heat Pump)	66.5 24953

WINTER CALCULATIONS

Winter Heating Load (for 3410 sqft)

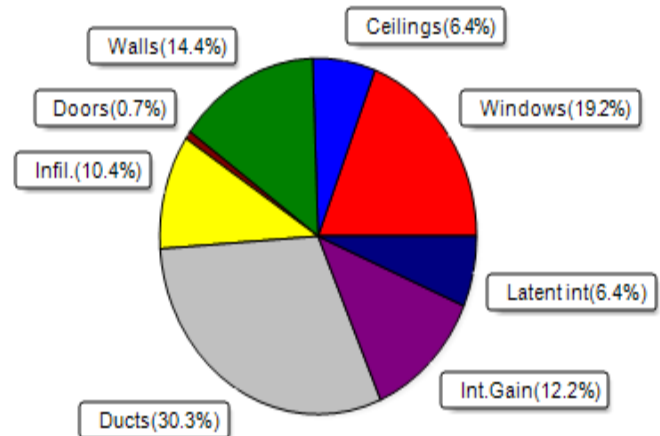
Load component	Load
Window total 441 sqft	6352 Btuh
Wall total 2395 sqft	8503 Btuh
Door total 20 sqft	368 Btuh
Ceiling total 2783 sqft	2825 Btuh
Floor total See detail report	10736 Btuh
Infiltration 94 cfm	4118 Btuh
Duct loss	10122 Btuh
Subtotal	43024 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	43024 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3410 sqft)

Load component	Load
Window total 441 sqft	7189 Btuh
Wall total 2395 sqft	5420 Btuh
Door total 20 sqft	276 Btuh
Ceiling total 2783 sqft	2401 Btuh
Floor total	0 Btuh
Infiltration 71 cfm	1467 Btuh
Internal gain	4560 Btuh
Duct gain	8755 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	30068 Btuh
Latent gain(ducts)	2619 Btuh
Latent gain(infiltration)	2434 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	2400 Btuh
Total latent gain	7453 Btuh
TOTAL HEAT GAIN	37522 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 4 / 29 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Camille Souza
355 Short Lane
Lake City, FL 32025

Project Title:
Souza Renovation
Building Type: User

4/29/2022

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	S	15.8		14.4	227 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	28.0		14.4	403 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	16.3		14.4	234 Btuh
4	2, NFRC 0.25	TIM	0.36	S	40.0		14.4	576 Btuh
5	2, NFRC 0.25	Metal	0.36	E	40.0		14.4	576 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	24.0		14.4	346 Btuh
7	2, NFRC 0.25	Metal	0.36	N	160.0		14.4	2304 Btuh
8	2, NFRC 0.25	TIM	0.36	N	20.0		14.4	288 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	28.0		14.4	403 Btuh
10	2, NFRC 0.25	Vinyl	0.36	S	13.1		14.4	189 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	14.0		14.4	202 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	42.0		14.4	605 Btuh
Window Total					441.1(sqft)			6352 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	178		3.55	630 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	40		3.55	142 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	349		3.55	1239 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	184		3.55	653 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	443		3.55	1572 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	236		3.55	838 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	200		3.55	711 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	304		3.55	1079 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	199		3.55	708 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	262		3.55	930 Btuh
Wall Total					2395(sqft)			8503 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, 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/Metal		(0.025)	38.0/0.0	1669		1.0	1694 Btuh
2	Vented Attic/L/Metal		(0.025)	38.0/0.0	1114		1.0	1131 Btuh
Ceiling Total					2783(sqft)			2825Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	227.5 ft(perim.)		47.2	10736 Btuh
2	Interior		(1.180)	19.0	1013.0 sqft		0.0	0 Btuh
Floor Total					3410 sqft			10736 Btuh
Envelope Subtotal:								28784 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.21	27280	1.00	94.0		4118 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Camille Souza
355 Short Lane
Lake City, FL 32025

Project Title:
Souza Renovation
Building Type: User

4/29/2022

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.308)	10122 Btuh
All Zones	Sensible Subtotal All Zones	43024 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	43024 Btuh 0 Btuh 43024 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	36216 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

Camille Souza
355 Short Lane
Lake City, FL 32025

Project Title:
Souza Renovation

4/29/2022

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	S		1.0ft.	2.0ft.	15.8	15.8	0.0	12	14	191	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	0.5ft.	28.0	28.0	0.0	12	14	339	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	0.5ft.	16.3	16.3	0.0	12	14	197	Btuh
4	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	0.5ft.	40.0	40.0	0.0	12	14	484	Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	4.0ft.	40.0	0.0	40.0	12	31	1238	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	24.0	0.0	24.0	12	12	290	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	160.0	0.0	160.0	12	12	1936	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	20.0	0.0	20.0	12	12	242	Btuh
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	9.0ft.	28.0	0.0	28.0	12	31	866	Btuh
10	2 NFRC	0.25, 0.36	No	No	S		0.5ft.	0.3ft.	13.1	13.1	0.0	12	14	159	Btuh
11	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	4.0ft.	14.0	0.0	14.0	12	12	169	Btuh
12	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	0.5ft.	42.0	11.7	30.3	12	31	1078	Btuh
Window Total									441 (sqft)					7189 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.0		177.6		2.3		402 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		40.0		2.3		91 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		349.1		2.3		790 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.0		184.0		2.3		416 Btuh				
5	Frame - Wood - Ext		0.09		13.0/0.0		442.7		2.3		1002 Btuh				
6	Frame - Wood - Ext		0.09		13.0/0.0		236.0		2.3		534 Btuh				
7	Frame - Wood - Ext		0.09		13.0/0.0		200.2		2.3		453 Btuh				
8	Frame - Wood - Ext		0.09		13.0/0.0		304.0		2.3		688 Btuh				
9	Frame - Wood - Ext		0.09		13.0/0.0		199.3		2.3		451 Btuh				
10	Frame - Wood - Ext		0.09		13.0/0.0		262.0		2.3		593 Btuh				
Wall Total							2395 (sqft)					5420 Btuh			
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load					
1	Insulated - Exterior						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 AtticLight/Metal/RB		0.025		38.0/0.0		1668.7		0.86		1440 Btuh				
2	Vented AtticLight/Metal/RB		0.025		38.0/0.0		1114.0		0.86		961 Btuh				
Ceiling Total							2783 (sqft)					2401 Btuh			
Floors	Type	U-Value		R-Value		Size		HTM		Load					
1	Slab On Grade				0.0		2397 (ft-perimeter)		0.0		0 Btuh				
2	Interior				19.0		1013 (sqft)		0.0		0 Btuh				
Floor Total							3410.0 (sqft)					0 Btuh			
Envelope Subtotal:												15286 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

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355 Short Lane
Lake City, FL 32025

Project Title: Souza Renovation
Climate: FL_GAINESVILLE_REGIONAL_A

4/29/2022

Infiltration	Type Natural	Average ACH 0.16	Volume(cuft) 27280	Wall Ratio 1	CFM= 70.5	Load 1467 Btuh
Internal gain		Occupants 12	Btuh/occupant X 230	Appliance +	1800	Load 4560 Btuh
	Sensible Envelope Load:					21314 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.411)					8755 Btuh
	Sensible Load All Zones					30068 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Camille Souza
355 Short Lane
Lake City, FL 32025

Project Title: Souza Renovation

Climate: FL_GAINESVILLE_REGIONAL_A

4/29/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	21314 Btuh
	Sensible Duct Load	8755 Btuh
	Total Sensible Zone Loads	30068 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	30068 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2434 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	2619 Btuh
	Latent occupant gain (12.0 people @ 200 Btuh per person)	2400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	7453 Btuh
	TOTAL GAIN	37522 Btuh

EQUIPMENT

1. Central Unit	#	24953 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