

Residential System Sizing Calculation

Summary

Project Title:
Susie Hall Guest House

, FL

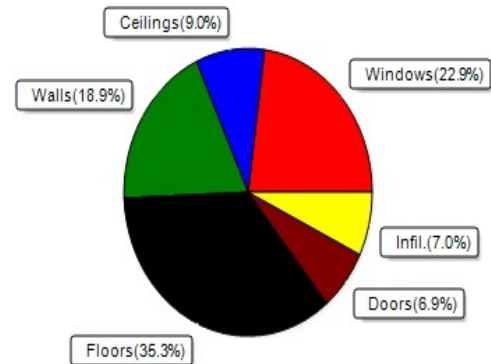
3/31/2023

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	21244 Btuh	Total cooling load calculation	14951 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	141.2 30000	Sensible (SHR = 0.85)	186.5 25500
Heat Pump + Auxiliary(0.0kW)	141.2 30000	Latent	351.8 4500
		Total (Electric Heat Pump)	200.7 30000

WINTER CALCULATIONS

Winter Heating Load (for 1398 sqft)

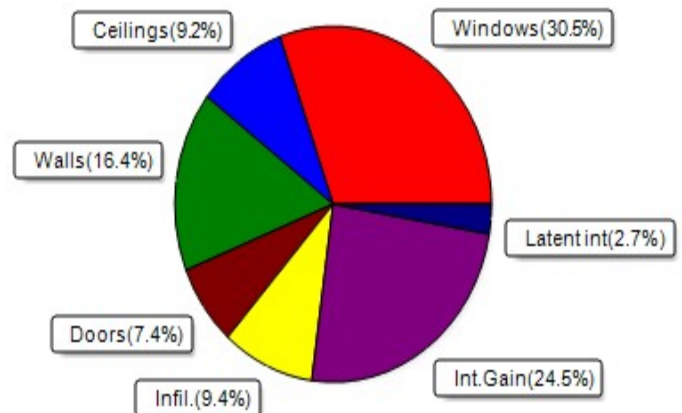
Load component	Load
Window total 203 sqft	4872 Btuh
Wall total 1129 sqft	4007 Btuh
Door total 80 sqft	1472 Btuh
Ceiling total 1398 sqft	1901 Btuh
Floor total 1398 sqft	7505 Btuh
Infiltration 34 cfm	1487 Btuh
Duct loss	0 Btuh
Subtotal	21244 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	21244 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1398 sqft)

Load component	Load
Window total 203 sqft	4553 Btuh
Wall total 1129 sqft	2446 Btuh
Door total 80 sqft	1104 Btuh
Ceiling total 1398 sqft	1379 Btuh
Floor total	0 Btuh
Infiltration 25 cfm	530 Btuh
Internal gain	3660 Btuh
Duct gain	0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	13672 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	879 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	400 Btuh
Total latent gain	1279 Btuh
TOTAL HEAT GAIN	14951 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

3-31-23

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Susie Hall Guest House

, FL

3/31/2023

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
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	0.27, 0.60	No	No	NW	3.5ft	2.3ft	30.0	0.0	30.0	17	30	886	Btuh		
2	2 NFRC	0.27, 0.60	No	No	N	1.5ft	2.3ft	60.0	0.0	60.0	17	17	1025	Btuh		
3	2 NFRC	0.27, 0.60	No	No	E	1.5ft	2.3ft	20.0	0.0	20.0	17	37	749	Btuh		
4	2 NFRC	0.27, 0.60	No	No	E	1.5ft	2.3ft	6.0	0.0	6.0	17	37	225	Btuh		
5	2 NFRC	0.27, 0.60	No	No	E	1.5ft	2.3ft	9.0	0.0	9.0	17	37	337	Btuh		
6	2 NFRC	0.27, 0.60	No	No	S	7.5ft	2.3ft	30.0	30.0	0.0	17	19	512	Btuh		
7	2 NFRC	0.27, 0.60	No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	17	17	512	Btuh		
8	2 NFRC	0.27, 0.60	No	No	N	1.5ft	2.3ft	18.0	0.0	18.0	17	17	307	Btuh		
Window Total								203 (sqft)					4553 Btuh			
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
						Cav/Sheath										
1	Frame - Wood - Ext					0.09		13.0/0.0		72.0		2.3		163 Btuh		
2	Frame - Wood - Ext					0.09		13.0/0.0		170.0		2.3		385 Btuh		
3	Frame - Wood - Ext					0.09		13.0/0.0		272.5		2.3		617 Btuh		
4	Frame - Wood - Adj					0.09		13.0/0.0		187.0		1.7		315 Btuh		
5	Frame - Wood - Ext					0.09		13.0/0.0		25.0		2.3		57 Btuh		
6	Frame - Wood - Ext					0.09		13.0/0.0		46.5		2.3		105 Btuh		
7	Frame - Wood - Ext					0.09		13.0/0.0		87.0		2.3		197 Btuh		
8	Frame - Wood - Ext					0.09		13.0/0.0		268.5		2.3		608 Btuh		
Wall Total								1129 (sqft)					2446 Btuh			
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior							40.0		13.8		552 Btuh				
2	Insulated - Garage							20.0		13.8		276 Btuh				
3	Insulated - Exterior							20.0		13.8		276 Btuh				
Door Total								80 (sqft)					1104 Btuh			
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
1	SnglAsmb no airsp/DarkShingle					0.034		30.0/0.0		1398.0		0.99		1379 Btuh		
Ceiling Total								1398 (sqft)					1379 Btuh			
Floors	Type								Size		HTM		Load			
1	Slab On Grade					0.0		1398 (ft-perimeter)		0.0		0 Btuh				
Floor Total								1398.0 (sqft)					0 Btuh			
	Envelope Subtotal:												9482 Btuh			
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.12		12582		1		25.4		530 Btuh		
Internal gain						Occupants		Btuh/occupant		Appliance		Load				
						2		X 230	+	3200		3660 Btuh				
	Sensible Envelope Load:												13672 Btuh			
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)												0 Btuh			
	Sensible Load All Zones												13672 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Susie Hall Guest House

, FL

3/31/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13672 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	13672 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	13672 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	879 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1279 Btuh
	TOTAL GAIN	14951 Btuh

EQUIPMENT

1. Central Unit	#	30000 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

Project Title:
Susie Hall Guest House
Building Type: User

, FL

3/31/2023

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)
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 0.27	Vinyl	0.60	NW	30.0		24.0	720 Btuh
2	2, NFRC 0.27	Vinyl	0.60	N	60.0		24.0	1440 Btuh
3	2, NFRC 0.27	Vinyl	0.60	E	20.0		24.0	480 Btuh
4	2, NFRC 0.27	Vinyl	0.60	E	6.0		24.0	144 Btuh
5	2, NFRC 0.27	Vinyl	0.60	E	9.0		24.0	216 Btuh
6	2, NFRC 0.27	Vinyl	0.60	S	30.0		24.0	720 Btuh
7	2, NFRC 0.27	Vinyl	0.60	N	30.0		24.0	720 Btuh
8	2, NFRC 0.27	Vinyl	0.60	N	18.0		24.0	432 Btuh
	Window Total				203.0(sqft)			4872 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	170		3.55	604 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	273		3.55	967 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	187		3.55	664 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	25		3.55	89 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	47		3.55	165 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	309 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.55	953 Btuh
	Wall Total				1129(sqft)			4007 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		40		18.4	736 Btuh
2	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
3	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh
	Door Total				80(sqft)			1472Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Shing		(0.034)	30.0/0.0	1398		1.4	1901 Btuh
	Ceiling Total				1398(sqft)			1901Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	159.0 ft(perim.)		47.2	7505 Btuh
	Floor Total				1398 sqft			7505 Btuh
	Envelope Subtotal:							19757 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	12582	1.00	33.9		1487 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Susie Hall Guest House
Building Type: User

3/31/2023

All Zones	Sensible Subtotal All Zones	21244 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	21244 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	21244 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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