

Residential System Sizing Calculation

Summary

N/A
147 SW Christiansen Court
Lake City, FL

Project Title:
147 SW Christiansen Court

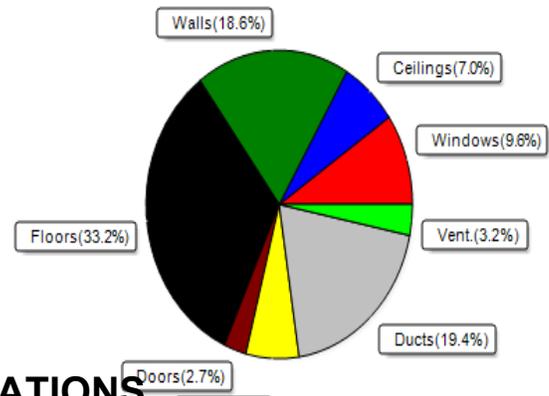
3/2/2023

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	27174	Btuh	Total cooling load calculation	22604	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	27174	Sensible (SHR = 0.70)	87.7	15822
Heat Pump + Auxiliary(0.0kW)	100.0	27174	Latent	148.7	6781
			Total (Electric Heat Pump)	100.0	22604

WINTER CALCULATIONS

Winter Heating Load (for 1776 sqft)

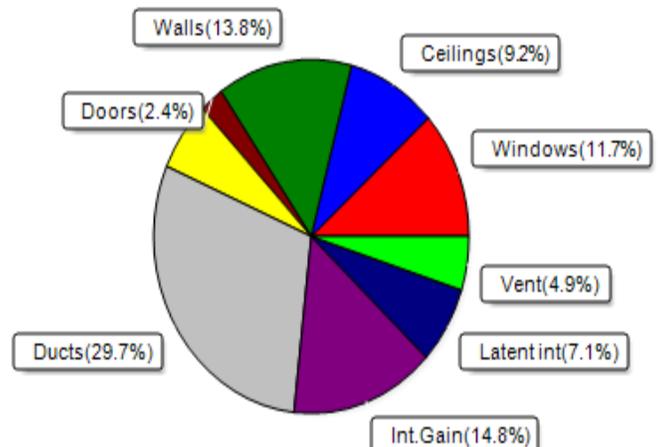
Load component	Load	
Window total	181 sqft	2606 Btuh
Wall total	1426 sqft	5063 Btuh
Door total	40 sqft	736 Btuh
Ceiling total	1865 sqft	1893 Btuh
Floor total	1776 sqft	9015 Btuh
Infiltration	39 cfm	1705 Btuh
Duct loss		5279 Btuh
Subtotal		26298 Btuh
Ventilation Ex:0 cfm; Sup:20 cfm		876 Btuh
TOTAL HEAT LOSS		27174 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1776 sqft)

Load component	Load	
Window total	181 sqft	2638 Btuh
Wall total	1426 sqft	3123 Btuh
Door total	40 sqft	552 Btuh
Ceiling total	1865 sqft	2083 Btuh
Floor total		0 Btuh
Infiltration	26 cfm	542 Btuh
Internal gain		3340 Btuh
Duct gain		5349 Btuh
Sens.Ventilation Ex:0 cfm; Sup:20 cfm		416 Btuh
Blower Load		0 Btuh
Total sensible gain		18043 Btuh
Latent gain(ducts)		1372 Btuh
Latent gain(infiltration)		899 Btuh
Latent gain(ventilation)		690 Btuh
Latent gain(internal/occupants/other)		1600 Btuh
Total latent gain		4561 Btuh
TOTAL HEAT GAIN		22604 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 3 / 2 / 2023

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A
147 SW Christiansen Court
Lake City, FL

Project Title:
147 SW Christiansen Court
Building Type: User

3/2/2023

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 0.25	Vinyl	0.36	S	60.0		14.4	864 Btuh	
2	2, NFRC 0.25	Vinyl	0.36	E	4.0		14.4	58 Btuh	
3	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh	
4	2, NFRC 0.25	TIM	0.36	N	40.0		14.4	576 Btuh	
5	2, NFRC 0.25	Vinyl	0.36	N	12.0		14.4	173 Btuh	
6	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh	
7	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh	
8	2, NFRC 0.25	Vinyl	0.36	W	16.0		14.4	230 Btuh	
	Window Total				181.0(sqft)			2606 Btuh	
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load	
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	210		3.55	744 Btuh	
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	260		3.55	923 Btuh	
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh	
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	109		3.55	385 Btuh	
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh	
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	189		3.55	671 Btuh	
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	307		3.55	1090 Btuh	
8	Frame - Wood	- Adj	(0.089)	13.0/0.0	181		3.55	643 Btuh	
	Wall Total				1426(sqft)			5063 Btuh	
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load	
1	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh	
2	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh	
	Door Total				40(sqft)			736Btuh	
Ceilings	Type/Color/Surface	Ueff.	R-Value		Area	X	HTM=	Load	
1	Flat ceil/M/Shing	(0.025)	38.0/0.0		1865		1.0	1893 Btuh	
	Ceiling Total				1865(sqft)			1893Btuh	
Floors	Type	Ueff.	R-Value		Size	X	HTM=	Load	
1	Slab On Grade	(1.180)	0.0		191.0 ft(perim.)		47.2	9015 Btuh	
	Floor Total				1776 sqft			9015 Btuh	
	Envelope Subtotal:								19314 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load	
	Natural(Adjusted for ventilation)	0.16	15984		1.00	38.9		1705 Btuh	
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.251)							5279 Btuh	
All Zones	Sensible Subtotal All Zones								26298 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A
 147 SW Christiansen Court
 Lake City, FL

Project Title:
 147 SW Christiansen Court
 Building Type: User

3/2/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	26298 Btuh 876 Btuh 27174 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27174 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

N/A
147 SW Christiansen Court
Lake City, FL

Project Title:
147 SW Christiansen Court

3/2/2023

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	0.25, 0.36	No	No	S	1.5ft.	1.0ft.	60.0	60.0	0.0	12	14	726	Btuh	
2	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
3	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh	
4	2 NFRC	0.25, 0.36	No	No	N	9.5ft.	1.0ft.	40.0	0.0	40.0	12	12	484	Btuh	
5	2 NFRC	0.25, 0.36	B-L	No	N	1.5ft.	1.0ft.	12.0	0.0	12.0	9	9	112	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh	
7	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
8	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	16.0	1.0	15.0	12	31	477	Btuh	
	Excursion													85	Btuh
	Window Total								181 (sqft)					2638 Btuh	
Walls	Type	U-Value	R-Value	Area(sqft)		HTM		Load							
1	Frame - Wood - Ext	0.09	13.0/0.0	209.5		2.3		474 Btuh							
2	Frame - Wood - Ext	0.09	13.0/0.0	260.0		2.3		588 Btuh							
3	Frame - Wood - Ext	0.09	13.0/0.0	99.0		2.3		224 Btuh							
4	Frame - Wood - Ext	0.09	13.0/0.0	108.5		2.3		246 Btuh							
5	Frame - Wood - Ext	0.09	13.0/0.0	72.0		2.3		163 Btuh							
6	Frame - Wood - Ext	0.09	13.0/0.0	189.0		2.3		428 Btuh							
7	Frame - Wood - Ext	0.09	13.0/0.0	307.0		2.3		695 Btuh							
8	Frame - Wood - Adj	0.09	13.0/0.0	181.0		1.7		305 Btuh							
	Wall Total			1426 (sqft)				3123 Btuh							
Doors	Type	Area (sqft)	HTM		Load										
1	Insulated - Exterior	20.0	13.8		276 Btuh										
2	Insulated - Garage	20.0	13.8		276 Btuh										
	Door Total		40 (sqft)		552 Btuh										
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM		Load								
1	Vented Attic/Med/Shingle/RB	0.025	38.0/0.0	1865.0	1.12		2083 Btuh								
	Ceiling Total			1865 (sqft)			2083 Btuh								
Floors	Type	R-Value	Size	HTM		Load									
1	Slab On Grade	0.0	1776 (ft-perimeter)	0.0		0 Btuh									
	Floor Total		1776.0 (sqft)			0 Btuh									
Envelope Subtotal:													8396 Btuh		
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load									
	Natural(Adjusted for ventilation)	0.10	15984	1	26.0	542 Btuh									
Internal gain	Occupants	Btuh/occupant	Appliance	Load											
	8	X 230	+	1500	3340 Btuh										
Sensible Envelope Load:													12278 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
147 SW Christiansen Court
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
147 SW Christiansen Court

3/2/2023

Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)	(DGM of 0.436)	5349 Btuh
		Sensible Load All Zones	17627 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
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Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
147 SW Christiansen Court

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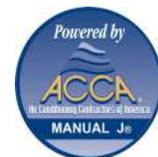
WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12278 Btuh
	Sensible Duct Load	5349 Btuh
	Total Sensible Zone Loads	17627 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	416 Btuh
	Blower	0 Btuh
	Total sensible gain	18043 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	899 Btuh
	Latent ventilation gain	690 Btuh
	Latent duct gain	1372 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4561 Btuh
	TOTAL GAIN	22604 Btuh

EQUIPMENT

1. Central Unit	#	22604 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