

Residential System Sizing Calculation

Summary

N/A
145 SW Christiansen Court
Lake City, FL 32025

Project Title:
145 SW Christiansen Court

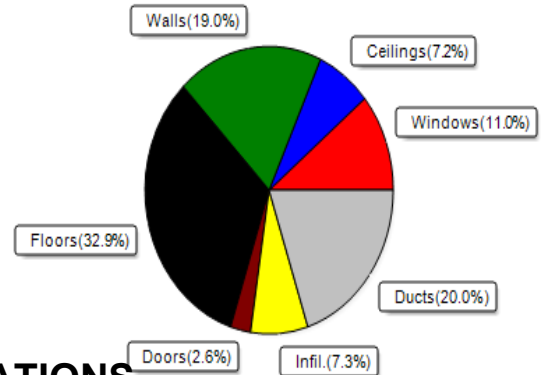
3/2/2023

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	28061 Btuh	Total cooling load calculation	23895 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 28061	Sensible (SHR = 0.70)	82.0 16420
Heat Pump + Auxiliary(0.0kW)	100.0 28061	Latent	181.7 7037
		Total (Electric Heat Pump)	98.2 23457

WINTER CALCULATIONS

Winter Heating Load (for 1895 sqft)

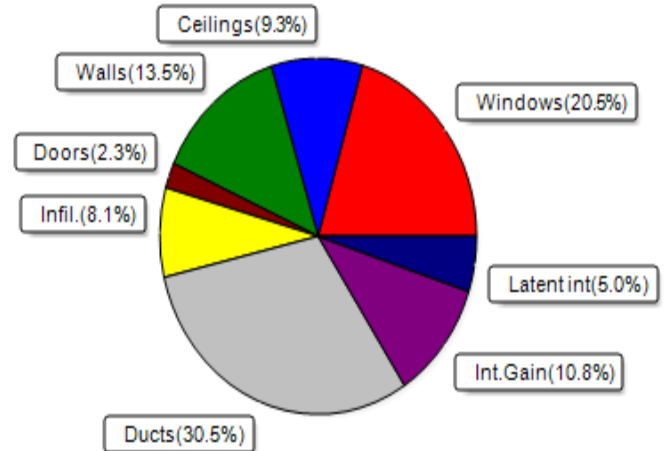
Load component	Load
Window total 215 sqft	3096 Btuh
Wall total 1503 sqft	5336 Btuh
Door total 40 sqft	736 Btuh
Ceiling total 1990 sqft	2020 Btuh
Floor total 1895 sqft	9220 Btuh
Infiltration 47 cfm	2045 Btuh
Duct loss	5608 Btuh
Subtotal	28061 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	28061 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1895 sqft)

Load component	Load
Window total 215 sqft	4895 Btuh
Wall total 1503 sqft	3228 Btuh
Door total 40 sqft	552 Btuh
Ceiling total 1990 sqft	2222 Btuh
Floor total	0 Btuh
Infiltration 35 cfm	729 Btuh
Internal gain	2580 Btuh
Duct gain	5815 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	20021 Btuh
Latent gain(ducts)	1465 Btuh
Latent gain(infiltration)	1209 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3874 Btuh
TOTAL HEAT GAIN	23895 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 3 / 2 / 2022

W. C. Smith

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A
145 SW Christiansen Court
Lake City, FL 32025

Project Title:
145 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	N	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	75.0		14.4	1080 Btuh
3	2, NFRC 0.25	TIM	0.36	S	40.0		14.4	576 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	S	4.0		14.4	58 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
Window Total					215.0(sqft)			3096 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	154		3.55	547 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	267		3.55	948 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	178 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	144		3.55	511 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.55	955 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	318		3.55	1129 Btuh
7	Frame - Wood	- Adj	(0.089)	13.0/0.0	169		3.55	600 Btuh
8	Frame - Wood	- Adj	(0.089)	13.0/0.0	132		3.55	469 Btuh
Wall Total					1503(sqft)			5336 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	1990		1.0	2020 Btuh
Ceiling Total					1990(sqft)			2020Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	195.3 ft(perim.)		47.2	9220 Btuh
Floor Total					1895 sqft			9220 Btuh
Envelope Subtotal:								20408 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	17055	1.00	46.7		2045 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.250)							5608 Btuh
All Zones	Sensible Subtotal All Zones							28061 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A
145 SW Christiansen Court
Lake City, FL 32025

Project Title:
145 SW Christiansen Court
Building Type: User

3/2/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	28061 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	28061 Btuh

EQUIPMENT

1. Electric Heat Pump	#	28061 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
145 SW Christiansen Court
Lake City, FL 32025

Project Title:
145 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	N		7.5ft.	1.0ft.	30.0	30.0	0.0	12	25	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	75.0	22.0	53.0	12	25	1578	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		6.5ft.	1.0ft.	40.0	0.0	40.0	12	24	946	Btuh
4	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	30.0	0.0	30.0	12	24	709	Btuh
5	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	4.0	0.0	4.0	12	24	95	Btuh
6	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.0	6.0	12	24	142	Btuh
7	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	30.0	0.0	30.0	12	24	709	Btuh
	Excursion													354	Btuh
	Window Total								215 (sqft)					4895 Btuh	
Walls	Type		U-Value		R-Value		Area(sqft)		HTM		Load				
					Cav/Sheath										
1	Frame - Wood - Ext		0.09		13.0/0.0		154.0		2.3		349 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		267.0		2.3		604 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		50.0		2.3		113 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.0		144.0		2.3		326 Btuh				
5	Frame - Wood - Ext		0.09		13.0/0.0		269.0		2.3		609 Btuh				
6	Frame - Wood - Ext		0.09		13.0/0.0		318.0		2.3		720 Btuh				
7	Frame - Wood - Adj		0.09		13.0/0.0		169.0		1.7		285 Btuh				
8	Frame - Wood - Adj		0.09		13.0/0.0		132.0		1.7		223 Btuh				
	Wall Total						1503 (sqft)				3228 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		1989.8		1.12		2222 Btuh				
	Ceiling Total						1990 (sqft)				2222 Btuh				
Floors	Type		R-Value		Size		HTM		Load						
1	Slab On Grade		0.0		1895 (ft-perimeter)		0.0		0 Btuh						
	Floor Total				1895.0 (sqft)				0 Btuh						
	Envelope Subtotal:											10897 Btuh			
Infiltration	Type		Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural		0.12		17055		1		35.0		729 Btuh				
Internal gain	Occupants		Btuh/occupant		Appliance		Load								
	6		X 230		+		1200		2580 Btuh						
	Sensible Envelope Load:											14206 Btuh			
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.409)											5815 Btuh			
	Sensible Load All Zones											20021 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
145 SW Christiansen Court
Lake City, FL 32025

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
145 SW Christiansen Court

3/2/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14206 Btuh
	Sensible Duct Load	5815 Btuh
	Total Sensible Zone Loads	20021 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20021 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1209 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1465 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3874 Btuh
	TOTAL GAIN	23895 Btuh

EQUIPMENT

1. Central Unit	#	23457 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