

Residential System Sizing Calculation

Summary

Steve & Gayle Krygier
SW Mixon Road
Lake City, FL 32024

Project Title:
Krygier Residence

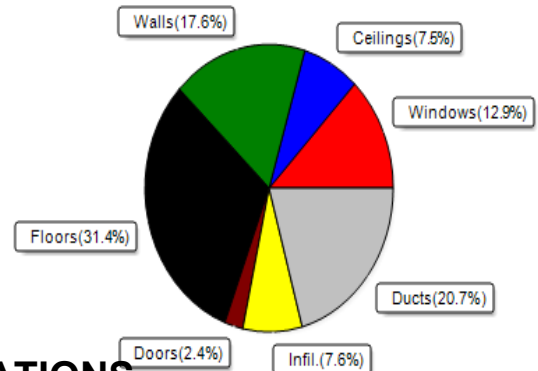
4/4/2023

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	27296 Btuh	Total cooling load calculation	22055 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 27296	Sensible (SHR = 0.70)	85.1 15438
Heat Pump + Auxiliary(0.0kW)	100.0 27296	Latent	169.4 6616
		Total (Electric Heat Pump)	100.0 22055

WINTER CALCULATIONS

Winter Heating Load (for 1911 sqft)

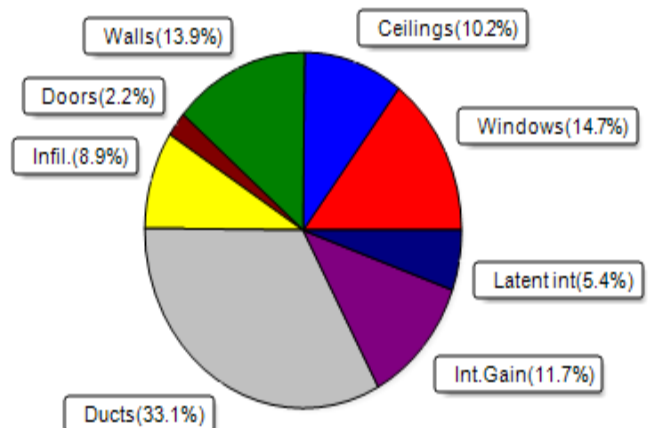
Load component		Load	
Window total	245 sqft	3528	Btuh
Wall total	1351 sqft	4798	Btuh
Door total	36 sqft	654	Btuh
Ceiling total	2007 sqft	2037	Btuh
Floor total	1911 sqft	8559	Btuh
Infiltration	47 cfm	2063	Btuh
Duct loss		5657	Btuh
Subtotal		27296	Btuh
Ventilation Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS		27296	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1911 sqft)

Load component		Load	
Window total	245 sqft	3241	Btuh
Wall total	1351 sqft	3059	Btuh
Door total	36 sqft	491	Btuh
Ceiling total	2007 sqft	2241	Btuh
Floor total		0	Btuh
Infiltration	35 cfm	735	Btuh
Internal gain		2580	Btuh
Duct gain		5802	Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load		0	Btuh
Total sensible gain		18148	Btuh
Latent gain(ducts)		1487	Btuh
Latent gain(infiltration)		1219	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3907	Btuh
TOTAL HEAT GAIN		22055	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 4 / 4 / 2023

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Steve & Gayle Krygier
SW Mixon Road
Lake City, FL 32024

Project Title:
Krygier Residence
Building Type: User

4/4/2023

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	E	30.0		14.4	432 Btuh
2	2, NFRC 0.25	TIM	0.36	E	40.0		14.4	576 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	75.0		14.4	1080 Btuh
4	2, NFRC 0.25	Vinyl	0.36	W	45.0		14.4	648 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	40.0		14.4	576 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
Window Total					245.0(sqft)			3528 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	230		3.55	817 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	441		3.55	1566 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	255		3.55	905 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	425		3.55	1510 Btuh
Wall Total					1351(sqft)			4798 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		36		18.4	654 Btuh
Door Total					36(sqft)			654Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/M/Metal		(0.025)	38.0/0.0	2007		1.0	2037 Btuh
Ceiling Total					2007(sqft)			2037Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	181.3 ft(perim.)		47.2	8559 Btuh
Floor Total					1911 sqft			8559 Btuh
Envelope Subtotal:								19576 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	17199	1.00	47.1		2063 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.261)							5657 Btuh
All Zones	Sensible Subtotal All Zones							27296 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Steve & Gayle Krygier
SW Mixon Road
Lake City, FL 32024

Project Title:
Krygier Residence
Building Type: User

4/4/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	27296 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	27296 Btuh

EQUIPMENT

1. Electric Heat Pump	#	27296 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

Steve & Gayle Krygier
SW Mixon Road
Lake City, FL 32024

Project Title:
Krygier Residence

4/4/2023

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	E		7.5ft.	1.0ft.	30.0	30.0	0.0	12	31	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	E		7.5ft.	1.0ft.	40.0	31.3	8.7	12	31	647	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.0ft.	75.0	75.0	0.0	12	14	907	Btuh
4	2 NFRC	0.25, 0.36	No	No	W		7.5ft.	1.0ft.	45.0	45.0	0.0	12	31	544	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		7.5ft.	1.0ft.	40.0	0.0	40.0	12	12	484	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		7.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh
	Excursion													114	Btuh
	Window Total								245 (sqft)					3241 Btuh	
Walls	Type		U-Value		R-Value		Area(sqft)		HTM		Load				
					Cav/Sheath										
1	Frame - Wood - Ext		0.09		13.0/0.0		230.0		2.3		521 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		441.0		2.3		998 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		255.0		2.3		577 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.0		425.4		2.3		963 Btuh				
	Wall Total						1351 (sqft)				3059 Btuh				
Doors	Type		Area (sqft)		HTM		Load								
1	Insulated - Exterior		35.6		13.8		491 Btuh								
	Door Total		36 (sqft)				491 Btuh								
Ceilings	Type/Color/Surface		U-Value		R-Value		Area(sqft)		HTM		Load				
1	Vented Attic/Med/Metal/RB		0.025		38.0/0.0		2006.6		1.12		2241 Btuh				
	Ceiling Total						2007 (sqft)				2241 Btuh				
Floors	Type		R-Value		Size		HTM		Load						
1	Slab On Grade		0.0		1911 (ft-perimeter)		0.0		0 Btuh						
	Floor Total				1911.0 (sqft)				0 Btuh						
	Envelope Subtotal:											9032 Btuh			
Infiltration	Type		Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural		0.12		17199		1		35.3		735 Btuh				
Internal gain	Occupants		Btuh/occupant		Appliance		Load								
	6		X 230		+ 1200		2580 Btuh								
	Sensible Envelope Load:											12346 Btuh			
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)		(DGM of 0.470)		5802 Btuh										
	Sensible Load All Zones											18148 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Steve & Gayle Krygier
SW Mixon Road
Lake City, FL 32024

Project Title: Krygier Residence

Climate:FL_GAINESVILLE_REGIONAL_A

4/4/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12346 Btuh
	Sensible Duct Load	5802 Btuh
	Total Sensible Zone Loads	18148 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18148 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1219 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1487 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3907 Btuh
	TOTAL GAIN	22055 Btuh

EQUIPMENT

1. Central Unit	#	22055 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