

Residential System Sizing Calculation

Summary

Project Title:
Dava Walters Residence

, FL

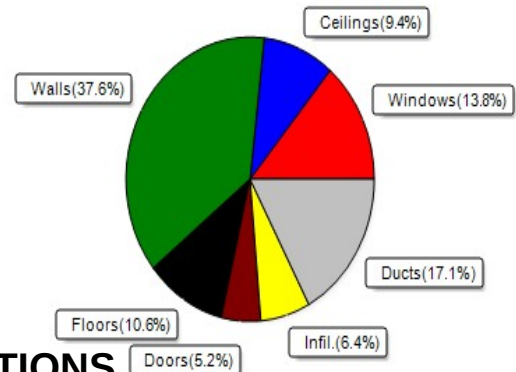
8/29/2023

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			6182	Btuh	
Total cooling load calculation			8551	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	388.2	24000	Sensible (SHR = 0.85)	259.5	20400
Heat Pump + Auxiliary(0.0kW)	388.2	24000	Latent	521.6	3600
			Total (Electric Heat Pump)	280.7	24000

WINTER CALCULATIONS

Winter Heating Load (for 456 sqft)

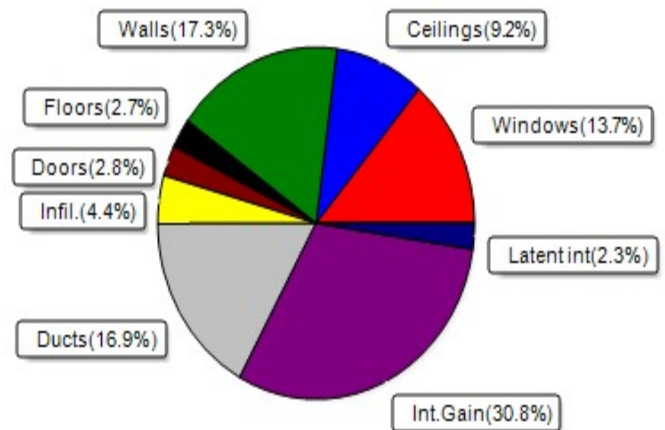
Load component	Load
Window total 82 sqft	853 Btuh
Wall total 654 sqft	2322 Btuh
Door total 20 sqft	320 Btuh
Ceiling total 456 sqft	581 Btuh
Floor total 456 sqft	654 Btuh
Infiltration 9 cfm	395 Btuh
Duct loss	1057 Btuh
Subtotal	6182 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	6182 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 456 sqft)

Load component	Load
Window total 82 sqft	1172 Btuh
Wall total 654 sqft	1480 Btuh
Door total 20 sqft	240 Btuh
Ceiling total 456 sqft	784 Btuh
Floor total	229 Btuh
Infiltration 7 cfm	141 Btuh
Internal gain	2630 Btuh
Duct gain	1185 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	7861 Btuh
Latent gain(ducts)	256 Btuh
Latent gain(infiltration)	234 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	200 Btuh
Total latent gain	690 Btuh
TOTAL HEAT GAIN	8551 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

8-29-23

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Dava Walters Residence

, FL

8/29/2023

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	0.20, 0.26	No	No	N	1.5ft	2.3ft	15.0	0.0	15.0	9	9	137 Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	9.0	0.0	9.0	9	9	82 Btuh
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	9.0	0.0	9.0	9	24	218 Btuh
4	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	4.0	0.0	4.0	9	24	97 Btuh
5	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	9	11	274 Btuh
6	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	15.0	0.0	15.0	9	24	363 Btuh
	Window Total							82 (sqft)					1172 Btuh
Walls	Type					U-Value	R-Value	Area(sqft)		HTM		Load	
							Cav/Sheath						
	1	Frame - Wood - Ext				0.09	13.0/0.0	118.0		2.3		267 Btuh	
	2	Frame - Wood - Ext				0.09	13.0/0.0	203.0		2.3		459 Btuh	
	3	Frame - Wood - Ext				0.09	13.0/0.0	132.0		2.3		299 Btuh	
	4	Frame - Wood - Ext				0.09	13.0/0.0	201.0		2.3		455 Btuh	
		Wall Total						654 (sqft)				1480 Btuh	
Doors	Type							Area (sqft)		HTM		Load	
	1	Insulated - Exterior						20.0		12.0		240 Btuh	
		Door Total						20 (sqft)				240 Btuh	
Ceilings	Type/Color/Surface					U-Value	R-Value	Area(sqft)		HTM		Load	
	1	Vented Attic/DarkShingle				0.032	30.0/0.0	456.0		1.72		784 Btuh	
		Ceiling Total						456 (sqft)				784 Btuh	
Floors	Type						R-Value	Size		HTM		Load	
	1	Raised Wood - Adj					30.0	456 (sqft)		0.5		229 Btuh	
		Floor Total						456.0 (sqft)				229 Btuh	
	Envelope Subtotal:												3905 Btuh
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural					0.11		3648		1		6.8	141 Btuh
Internal gain						Occupants		Btuh/occupant		Appliance		Load	
						1		X 230	+		2400	2630 Btuh	
	Sensible Envelope Load:												6676 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.177)		1185 Btuh
	Sensible Load All Zones												7861 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Dava Walters Residence

, FL

8/29/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	6676 Btuh
	Sensible Duct Load	1185 Btuh
	Total Sensible Zone Loads	7861 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	7861 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	234 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	256 Btuh
	Latent occupant gain (1.0 people @ 200 Btuh per person)	200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	690 Btuh
	TOTAL GAIN	8551 Btuh

EQUIPMENT

1. Central Unit	#	24000 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:
Dava Walters Residence
Building Type: User

, FL

8/29/2023

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 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	9.0		10.4	94 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	9.0		10.4	94 Btuh
4	2, NFRC 0.20	Vinyl	0.26	E	4.0		10.4	42 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
6	2, NFRC 0.20	Vinyl	0.26	W	15.0		10.4	156 Btuh
	Window Total				82.0(sqft)			853 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	118		3.55	419 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	203		3.55	721 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	201		3.55	714 Btuh
	Wall Total				654(sqft)			2322 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
	Door Total				20(sqft)			320Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	456		1.3	581 Btuh
	Ceiling Total				456(sqft)			581Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Raised Wood - Adj		(0.036)	30.0	456.0 sqft		1.4	654 Btuh
	Floor Total				456 sqft			654 Btuh
	Envelope Subtotal:							4730 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.15	3648	1.00	9.0		395 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.206)	1057 Btuh
All Zones	Sensible Subtotal All Zones							6182 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Dava Walters Residence
Building Type: User

, FL

8/29/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	6182 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	6182 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24000 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