

Residential System Sizing Calculation

Summary

Project Title:
Dava Walters Residence

, FL

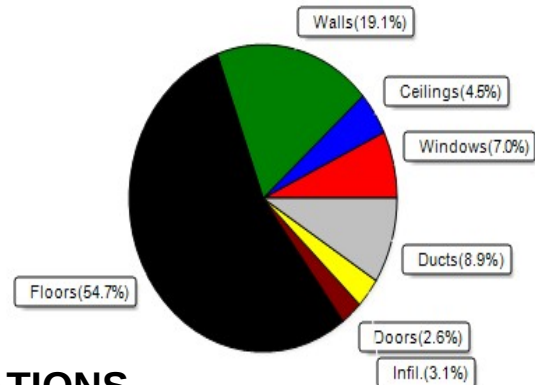
3/29/2023

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	12153 Btuh	Total cooling load calculation	10642 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	197.5 24000	Sensible (SHR = 0.85)	204.9 20400
Heat Pump + Auxiliary(0.0kW)	197.5 24000	Latent	523.0 3600
		Total (Electric Heat Pump)	225.5 24000

WINTER CALCULATIONS

Winter Heating Load (for 432 sqft)

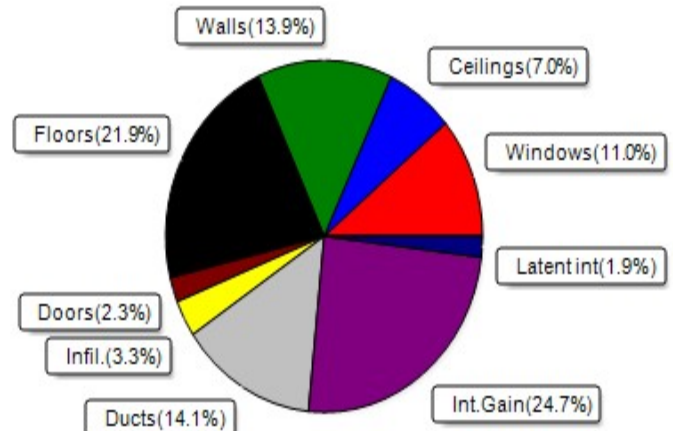
Load component	Load
Window total 82 sqft	853 Btuh
Wall total 654 sqft	2322 Btuh
Door total 20 sqft	320 Btuh
Ceiling total 432 sqft	550 Btuh
Floor total 432 sqft	6647 Btuh
Infiltration 9 cfm	375 Btuh
Duct loss	1087 Btuh
Subtotal	12153 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	12153 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 432 sqft)

Load component	Load
Window total 82 sqft	1172 Btuh
Wall total 654 sqft	1480 Btuh
Door total 20 sqft	240 Btuh
Ceiling total 432 sqft	743 Btuh
Floor total	2326 Btuh
Infiltration 6 cfm	133 Btuh
Internal gain	2630 Btuh
Duct gain	1229 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	9954 Btuh
Latent gain(ducts)	267 Btuh
Latent gain(infiltration)	221 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	200 Btuh
Total latent gain	688 Btuh
TOTAL HEAT GAIN	10642 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Dava Walters Residence

, FL

3/29/2023

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		432.0		1.72		743 Btuh
	Ceiling Total									432 (sqft)				743 Btuh	
Floors	Type							R-Value		Size		HTM		Load	
	1	Raised Wood - Adj							0.0		432 (sqft)		5.4		2326 Btuh
	Floor Total									432.0 (sqft)				2326 Btuh	
	Envelope Subtotal:												5962 Btuh		
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.11		3456		1		6.4		133 Btuh	
Internal gain						Occupants		Btuh/occupant		Appliance				Load	
						1		X	230	+	2400		2630 Btuh		
	Sensible Envelope Load:												8725 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.141)												1229 Btuh		
	Sensible Load All Zones												9954 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Dava Walters Residence

, FL

3/29/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	8725 Btuh
	Sensible Duct Load	1229 Btuh
	Total Sensible Zone Loads	9954 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	9954 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	221 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	267 Btuh
	Latent occupant gain (1.0 people @ 200 Btuh per person)	200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	688 Btuh
	TOTAL GAIN	10642 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

3/29/2023

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	432		1.3	550 Btuh
	Ceiling Total				432(sqft)			550Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Raised Wood - Adj		(0.385)	0.0	432.0 sqft		15.4	6647 Btuh
	Floor Total				432 sqft			6647 Btuh
	Envelope Subtotal:							10692 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.15	3456	1.00	8.5		375 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.098)	1087 Btuh
All Zones	Sensible Subtotal All Zones							12153 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Dava Walters Residence
Building Type: User

, FL

3/29/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	12153 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	12153 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