

Residential System Sizing Calculation

Summary

Project Title:
Weaver Residence

, FL

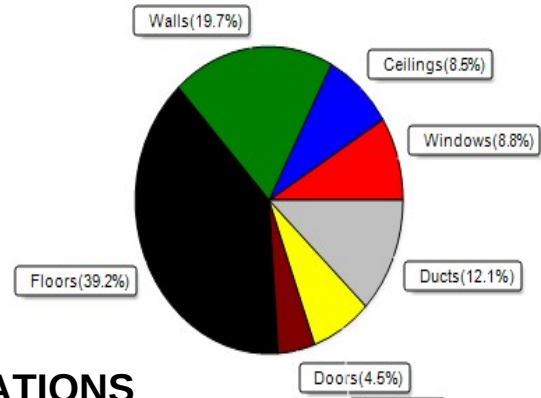
6/6/2024

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	16369 Btuh	Total cooling load calculation	16550 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	146.6 24000	Sensible (SHR = 0.75)	125.1 18000
Heat Pump + Auxiliary(0.0kW)	146.6 24000	Latent	277.3 6000
		Total (Electric Heat Pump)	145.0 24000

WINTER CALCULATIONS

Winter Heating Load (for 1092 sqft)

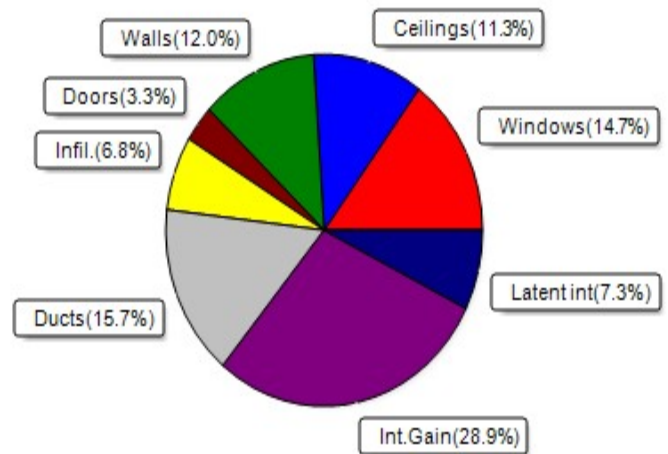
Load component	Load
Window total 138 sqft	1435 Btuh
Wall total 910 sqft	3231 Btuh
Door total 40 sqft	736 Btuh
Ceiling total 1092 sqft	1391 Btuh
Floor total 1092 sqft	6419 Btuh
Infiltration 27 cfm	1180 Btuh
Duct loss	1976 Btuh
Subtotal	16369 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	16369 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1092 sqft)

Load component	Load
Window total 138 sqft	2438 Btuh
Wall total 910 sqft	1983 Btuh
Door total 40 sqft	552 Btuh
Ceiling total 1092 sqft	1878 Btuh
Floor total	0 Btuh
Infiltration 20 cfm	421 Btuh
Internal gain	4780 Btuh
Duct gain	2334 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	14386 Btuh
Latent gain(ducts)	266 Btuh
Latent gain(infiltration)	698 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2164 Btuh
TOTAL HEAT GAIN	16550 Btuh



8th Edition



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EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Weaver Residence

, FL

6/6/2024

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	1.3ft	30.0	0.0	30.0	9	9	274 Btuh
2	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	15.0	0.0	15.0	9	24	363 Btuh
3	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	3.0	0.0	3.0	9	24	73 Btuh
4	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	30.0	30.0	0.0	9	11	274 Btuh
5	2 NFRC	0.20, 0.26	No	No	W		1.5ft	1.3ft	60.0	0.0	60.0	9	24	1453 Btuh
	Window Total								138 (sqft)					2438 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load	
							Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.0	178.0		2.3		403 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0	166.0		2.3		376 Btuh	
3	Frame - Wood - Adj						0.09	13.0/0.0	132.0		1.7		223 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	158.0		2.3		358 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	276.0		2.3		625 Btuh	
	Wall Total								910 (sqft)					1983 Btuh
Doors	Type								Area (sqft)		HTM		Load	
1	Insulated - Garage								20.0		13.8		276 Btuh	
2	Insulated - Exterior								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/DarkMetal						0.032	30.0/0.0	1092.0		1.72		1878 Btuh	
	Ceiling Total								1092 (sqft)					1878 Btuh
Floors	Type						R-Value		Size		HTM		Load	
1	Slab On Grade						0.0		1092 (ft-perimeter)		0.0		0 Btuh	
	Floor Total								1092.0 (sqft)					0 Btuh
	Envelope Subtotal:													6852 Btuh
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural						0.14		8736		1		20.2	421 Btuh
Internal gain						Occupants		Btuh/occupant		Appliance		Load		
							6		X 230		+		3400	4780 Btuh
	Sensible Envelope Load:													12052 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.194)		2334 Btuh	
	Sensible Load All Zones													14386 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Weaver Residence

, FL

6/6/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12052 Btuh
	Sensible Duct Load	2334 Btuh
	Total Sensible Zone Loads	14386 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14386 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	698 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	266 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2164 Btuh
	TOTAL GAIN	16550 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:
Weaver Residence
Building Type: User

, FL

6/6/2024

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	30.0		10.4	312 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	15.0		10.4	156 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	3.0		10.4	31 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
5	2, NFRC 0.20	Vinyl	0.26	W	60.0		10.4	624 Btuh
	Window Total				138.0(sqft)			1435 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	178		3.55	632 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	166		3.55	589 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	132		3.55	469 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	158		3.55	561 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	276		3.55	980 Btuh
	Wall Total				910(sqft)			3231 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior, 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/D/Metal		(0.032)	30.0/0.0	1092		1.3	1391 Btuh
	Ceiling Total				1092(sqft)			1391Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	136.0 ft(perim.)		47.2	6419 Btuh
	Floor Total				1092 sqft			6419 Btuh
	Envelope Subtotal:							13212 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	8736	1.00	26.9		1180 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.137)	1976 Btuh
All Zones	Sensible Subtotal All Zones							16369 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Weaver Residence
Building Type: User

6/6/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	16369 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	16369 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