

Residential System Sizing Calculation

Summary

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Diego Castro

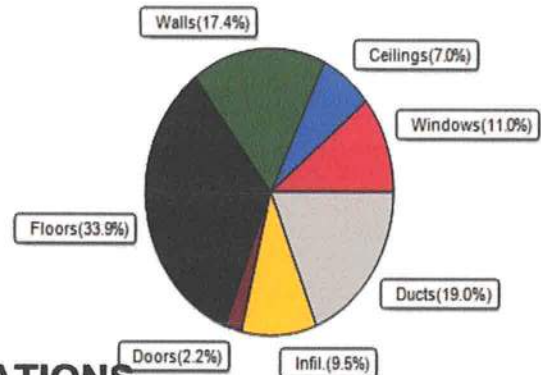
3/15/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)			
Winter design temperature(MJ8 99%/Cu)	33 F	Summer design temperature(MJ8 99%/Cu)	99 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	24 F
Total heating load calculation	31139 Btuh	Total cooling load calculation	28983 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	108.0 33639	Sensible (SHR = 0.70)	77.8 18478
Heat Pump + Auxiliary(0.0kW)	108.0 33639	Latent	151.0 7919
		Total (Electric Heat Pump)	91.1 26397

WINTER CALCULATIONS

Winter Heating Load (for 2116 sqft)

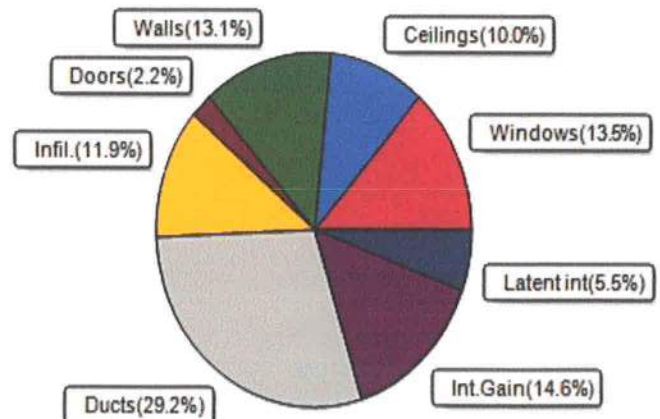
Load component		Load	
Window total	256 sqft	3410	Btuh
Wall total	1854 sqft	5431	Btuh
Door total	40 sqft	681	Btuh
Ceiling total	2328 sqft	2186	Btuh
Floor total	2116 sqft	10558	Btuh
Infiltration	73 cfm	2958	Btuh
Duct loss		5915	Btuh
Subtotal		31139	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
TOTAL HEAT LOSS		31139	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2116 sqft)

Load component		Load	
Window total	256 sqft	3912	Btuh
Wall total	1854 sqft	3799	Btuh
Door total	40 sqft	644	Btuh
Ceiling total	2328 sqft	2895	Btuh
Floor total		0	Btuh
Infiltration	55 cfm	1439	Btuh
Internal gain		4240	Btuh
Duct gain		6810	Btuh
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		23738	Btuh
Latent gain(ducts)		1644	Btuh
Latent gain(infiltration)		2001	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		5245	Btuh
TOTAL HEAT GAIN		28983	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 3 / 15 / 2024

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Diego Castro
Building Type: User

3/15/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%/Cu)
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	S	60.0		13.3	799 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0		13.3	200 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	4.0		13.3	53 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	15.0		13.3	200 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	45.0		13.3	599 Btuh
6	2, NFRC 0.25	TIM	0.36	N	20.0		13.3	266 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	45.0		13.3	599 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	30.0		13.3	400 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	6.0		13.3	80 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	16.0		13.3	213 Btuh
Window Total					256.0(sqft)			3410 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	187		2.86	535 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	81		2.86	232 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	99		2.86	283 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	347		2.86	992 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	95		2.86	270 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	112		2.86	320 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	72		2.86	206 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	77		2.86	219 Btuh
9	Frame - Wood	- Ext	(0.077)	19.0/0.0	72		2.86	206 Btuh
10	Frame - Wood	- Ext	(0.077)	19.0/0.0	195		2.86	558 Btuh
11	Frame - Wood	- Ext	(0.077)	19.0/0.0	154		2.86	439 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	204		3.28	670 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	106		3.28	348 Btuh
14	Frame - Wood	- Adj	(0.077)	19.0/0.0	54		2.86	154 Btuh
Wall Total					1854(sqft)			5431 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
2	Insulated - Garage, n		(0.460)		20		17.0	340 Btuh
Door Total					40(sqft)			681Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	2328		0.94	2186 Btuh
Ceiling Total					2328(sqft)			2186Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	241.8 ft(perim.)		43.7	10558 Btuh
Floor Total					2116 sqft			10558 Btuh
Envelope Subtotal:								22266 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Diego Castro
Building Type: User

3/15/2024

Infiltration	Type Natural	Wholehouse ACH 0.23	Volume(cuft) 19044	Wall Ratio 1.00	CFM= 73.0	2958 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.235)					5915 Btuh
All Zones	Sensible Subtotal All Zones					31139 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	31139 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	31139 Btuh

EQUIPMENT

1. Electric Heat Pump	#	33639 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

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Diego Castro

3/15/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(MJ8 99%/Cu)
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	Omt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded		
1	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	1.0ft.	60.0	60.0	0.0	14	16	834	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		1.0ft.	3.0ft.	15.0	8.0	7.0	14	16	222	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	4.0	1.0	3.0	14	33	113	Btuh
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	14	14	208	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	45.0	0.0	45.0	14	14	625	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	20.0	0.0	20.0	14	14	278	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	14	14	625	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	14	14	417	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	14	14	83	Btuh
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	16.0	1.0	15.0	14	33	505	Btuh
	Window Total								256 (sqft)					3912 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.08		19.0/0.0		187.0		2.0		381 Btuh				
2	Frame - Wood - Ext		0.08		19.0/0.0		81.0		2.0		165 Btuh				
3	Frame - Wood - Ext		0.08		19.0/0.0		99.0		2.0		202 Btuh				
4	Frame - Wood - Ext		0.08		19.0/0.0		347.0		2.0		708 Btuh				
5	Frame - Wood - Ext		0.08		19.0/0.0		94.5		2.0		193 Btuh				
6	Frame - Wood - Ext		0.08		19.0/0.0		112.0		2.0		228 Btuh				
7	Frame - Wood - Ext		0.08		19.0/0.0		72.0		2.0		147 Btuh				
8	Frame - Wood - Ext		0.08		19.0/0.0		76.5		2.0		156 Btuh				
9	Frame - Wood - Ext		0.08		19.0/0.0		72.0		2.0		147 Btuh				
10	Frame - Wood - Ext		0.08		19.0/0.0		195.0		2.0		398 Btuh				
11	Frame - Wood - Ext		0.08		19.0/0.0		153.5		2.0		313 Btuh				
12	Frame - Wood - Adj		0.09		13.0/0.0		204.0		2.1		435 Btuh				
13	Frame - Wood - Adj		0.09		13.0/0.0		106.0		2.1		226 Btuh				
14	Frame - Wood - Adj		0.08		19.0/0.0		54.0		1.9		100 Btuh				
	Wall Total								1854 (sqft)			3799 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		20.0		16.1	322 Btuh									
2	Insulated - Garage		20.0		16.1	322 Btuh									
	Door Total								40 (sqft)			644 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/DarkShingle/RB		0.025		38.0/0.0		2327.6		1.24		2895 Btuh				
	Ceiling Total								2328 (sqft)			2895 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		2116 (ft-perimeter)		0.0		0 Btuh						
	Floor Total								2116.0 (sqft)			0 Btuh			
	Envelope Subtotal:											11249 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Diego Castro

3/15/2024

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 19044	Wall Ratio 1	CFM= 54.8	Load 1439 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	2400	Load 4240 Btuh
	Sensible Envelope Load:					16928 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.402)					6810 Btuh
	Sensible Load All Zones					23738 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Diego Castro
259 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Diego Castro

Climate: FL_GAINESVILLE_REGIONAL_A

3/15/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16928 Btuh
	Sensible Duct Load	6810 Btuh
	Total Sensible Zone Loads	23738 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	23738 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	2001 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1644 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5245 Btuh
	TOTAL GAIN	28983 Btuh

EQUIPMENT

1. Central Unit	#	26397 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