

Residential System Sizing Calculation

Summary

David Reyes
165 NE Shelly Glen
Lake City, FL 32055

Project Title:
David Reyes Res

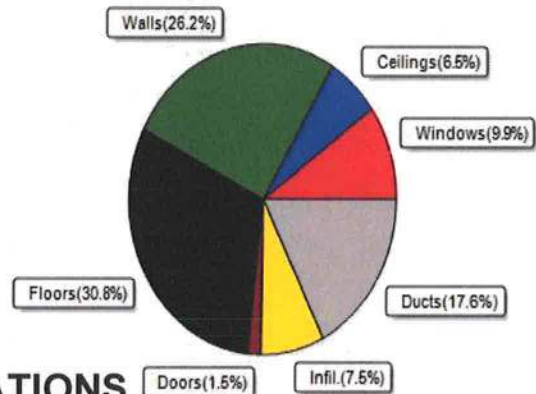
10/24/2024

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	22120 Btuh	Total cooling load calculation	20391 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	107.7 23813	Sensible (SHR = 0.75)	81.2 13795
Heat Pump + Auxiliary(0.0kW)	107.7 23813	Latent	135.4 4598
		Total (Electric Heat Pump)	90.2 18393

WINTER CALCULATIONS

Winter Heating Load (for 1400 sqft)

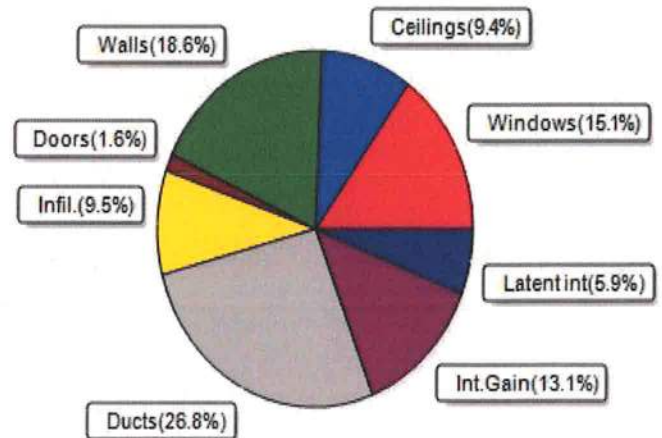
Load component		Load	
Window total	164 sqft	2186	Btuh
Wall total	1064 sqft	5788	Btuh
Door total	20 sqft	340	Btuh
Ceiling total	1540 sqft	1446	Btuh
Floor total	1400 sqft	6811	Btuh
Infiltration	41 cfm	1659	Btuh
Duct loss		3890	Btuh
Subtotal		22120	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
TOTAL HEAT LOSS		22120	Btuh



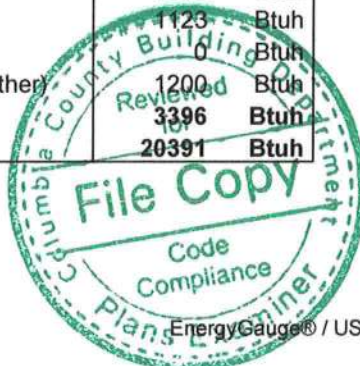
SUMMER CALCULATIONS

Summer Cooling Load (for 1400 sqft)

Load component		Load	
Window total	164 sqft	3077	Btuh
Wall total	1064 sqft	3801	Btuh
Door total	20 sqft	322	Btuh
Ceiling total	1540 sqft	1915	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	807	Btuh
Internal gain		2680	Btuh
Duct gain		4391	Btuh
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16995	Btuh
Latent gain(ducts)		1073	Btuh
Latent gain(infiltration)		1123	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3396	Btuh
TOTAL HEAT GAIN		20391	Btuh



8th Edition



EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 10 / 24 / 2024

Wm C. [Signature]

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

David Reyes
165 NE Shelly Glen
Lake City, FL 32055

Project Title:
David Reyes Res
Building Type: User

10/24/2024

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	E	15.0		13.3	200 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	3.4		13.3	45 Btuh
4	2, NFRC 0.25	TIM	0.36	N	40.0		13.3	533 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	9.0		13.3	120 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	3.4		13.3	45 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	30.0		13.3	400 Btuh
8	2, NFRC 0.25	Vinyl	0.36	W	3.4		13.3	45 Btuh
Window Total					164.1(sqft)			2186 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Conc Blk,Hollow - Ext		(0.147)	4.2/0.0	320		5.44	1741 Btuh
2	Conc Blk,Hollow - Ext		(0.147)	4.2/0.0	206		5.44	1119 Btuh
3	Conc Blk,Hollow - Ext		(0.147)	4.2/0.0	348		5.44	1891 Btuh
4	Conc Blk,Hollow - Ext		(0.147)	4.2/0.0	191		5.44	1037 Btuh
Wall Total					1064(sqft)			5788 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
Door Total					20(sqft)			340Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	1540		0.94	1446 Btuh
Ceiling Total					1540(sqft)			1446Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	156.0 ft(perim.)		43.7	6811 Btuh
Floor Total					1400 sqft			6811 Btuh
Envelope Subtotal:								16571 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.22	11200	1.00	41.0		1659 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.213)							3890 Btuh
All Zones	Sensible Subtotal All Zones							22120 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

David Reyes
165 NE Shelly Glen
Lake City, FL 32055

Project Title:
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Building Type: User

10/24/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	22120 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	22120 Btuh

EQUIPMENT

1. Electric Heat Pump	#	23813 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

David Reyes
165 NE Shelly Glen
Lake City, FL 32055

Project Title:
David Reyes Res

10/24/2024

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	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded			
1	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	0.5ft.	60.0	60.0	0.0	14	16	834	Btuh	
2	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	0.5ft.	15.0	2.2	12.8	14	33	449	Btuh	
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	0.5ft.	3.4	1.4	2.0	14	33	84	Btuh	
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	40.0	0.0	40.0	14	14	556	Btuh	
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	9.0	0.0	9.0	14	14	125	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	0.5ft.	3.4	0.0	3.4	14	14	47	Btuh	
7	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	0.5ft.	30.0	4.5	25.5	14	33	898	Btuh	
8	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	0.5ft.	3.4	1.4	2.0	14	33	84	Btuh	
Window Total									164 (sqft)					3077 Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Concrete Blk,Hollow- Ext						0.15	4.2/0.0	320.0		3.6		1143 Btuh			
2	Concrete Blk,Hollow- Ext						0.15	4.2/0.0	205.6		3.6		735 Btuh			
3	Concrete Blk,Hollow- Ext						0.15	4.2/0.0	347.6		3.6		1242 Btuh			
4	Concrete Blk,Hollow- Ext						0.15	4.2/0.0	190.6		3.6		681 Btuh			
Wall Total									1064 (sqft)					3801 Btuh		
Doors	Type								Area (sqft)		HTM		Load			
									20.0		16.1		322 Btuh			
Door Total									20 (sqft)					322 Btuh		
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
							0.025	38.0/0.0	1540.0		1.24		1915 Btuh			
Ceiling Total									1540 (sqft)					1915 Btuh		
Floors	Type						R-Value		Size		HTM		Load			
							0.0		1400 (ft-perimeter)		0.0		0 Btuh			
Floor Total									1400.0 (sqft)					0 Btuh		
Envelope Subtotal:														9116 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.16		11200		1		30.7		807 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							6		X 230		+		1300		2680 Btuh	
Sensible Envelope Load:														12603 Btuh		
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.348)		4391 Btuh			
Sensible Load All Zones														16995 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

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165 NE Shelly Glen
Lake City, FL 32055

Project Title:
David Reyes Res

Climate: FL_GAINESVILLE_REGIONAL_A

10/24/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12603 Btuh
	Sensible Duct Load	4391 Btuh
	Total Sensible Zone Loads	16995 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16995 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	1123 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1073 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3396 Btuh
	TOTAL GAIN	20391 Btuh

EQUIPMENT

1. Central Unit	#	18393 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