

Residential System Sizing Calculation

Summary

Project Title:
Little Residence - Holly Glen

, FL

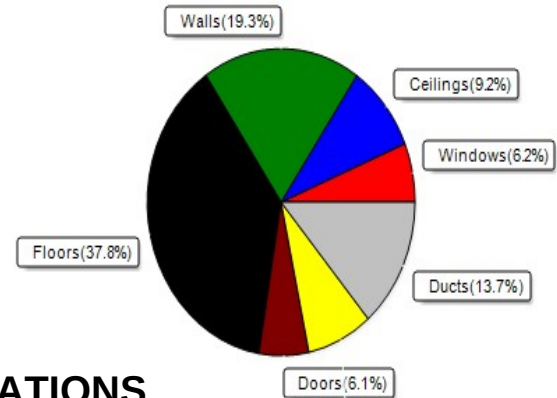
3/15/2023

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	19358 Btuh	Total cooling load calculation	16072 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	155.0 30000	Sensible (SHR = 0.85)	179.4 25500
Heat Pump + Auxiliary(0.0kW)	155.0 30000	Latent	241.7 4500
		Total (Electric Heat Pump)	186.7 30000

WINTER CALCULATIONS

Winter Heating Load (for 1400 sqft)

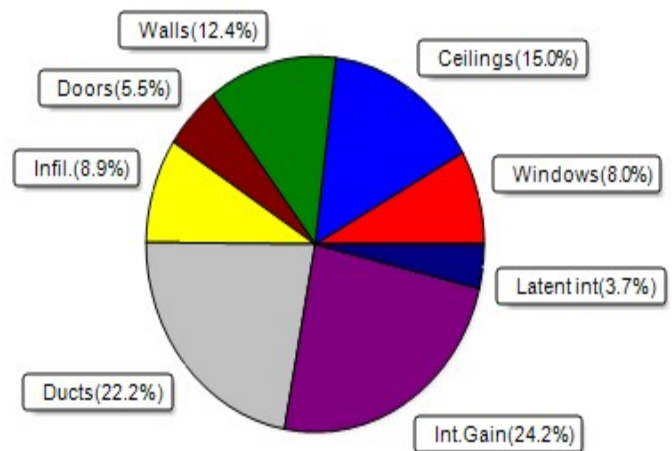
Load component	Load
Window total 115 sqft	1196 Btuh
Wall total 1207 sqft	3730 Btuh
Door total 73 sqft	1173 Btuh
Ceiling total 1400 sqft	1783 Btuh
Floor total 1400 sqft	7316 Btuh
Infiltration 35 cfm	1514 Btuh
Duct loss	2646 Btuh
Subtotal	19358 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	19358 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1400 sqft)

Load component	Load
Window total 115 sqft	1293 Btuh
Wall total 1207 sqft	1995 Btuh
Door total 73 sqft	880 Btuh
Ceiling total 1400 sqft	2408 Btuh
Floor total	0 Btuh
Infiltration 26 cfm	539 Btuh
Internal gain	3890 Btuh
Duct gain	3205 Btuh
Sens. Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	14211 Btuh
Latent gain(ducts)	367 Btuh
Latent gain(infiltration)	895 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	600 Btuh
Total latent gain	1862 Btuh
TOTAL HEAT GAIN	16072 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

3-16-23

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:

Little Residence - Holly Glen

, FL

3/15/2023

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	9.0	0.0	9.0	9	9	82	Btuh			
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	9	9	274	Btuh			
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	16.0	0.0	16.0	9	24	388	Btuh			
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	60.0	60.0	0.0	9	11	549	Btuh			
	Window Total							115 (sqft)					1293		Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load				
							Cav/Sheath										
1	Frame - Wood - Ext						0.08	19.0/0.0	259.5		1.7		429		Btuh		
2	Frame - Wood - Ext						0.08	19.0/0.0	275.0		1.7		455		Btuh		
3	Frame - Wood - Ext						0.08	19.0/0.0	326.5		1.7		540		Btuh		
4	Frame - Wood - Ext						0.08	19.0/0.0	212.7		1.7		352		Btuh		
5	Frame - Wood - Ext						0.08	19.0/0.0	108.0		1.7		179		Btuh		
6	Frame - Wood - Ext						0.08	19.0/0.0	25.0		1.7		41		Btuh		
	Wall Total									1207 (sqft)				1995		Btuh	
Doors	Type								Area (sqft)		HTM		Load				
1	Insulated - Exterior								20.0		12.0		240		Btuh		
2	Insulated - Exterior								33.3		12.0		400		Btuh		
3	Insulated - Exterior								20.0		12.0		240		Btuh		
	Door Total									73 (sqft)				880		Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load				
1	Vented Attic/DarkShingle						0.032	30.0/0.0	1400.0		1.72		2408		Btuh		
	Ceiling Total									1400 (sqft)				2408		Btuh	
Floors	Type						R-Value		Size		HTM		Load				
1	Slab On Grade						0.0		1400 (ft-perimeter)		0.0		0		Btuh		
	Floor Total									1400.0 (sqft)				0		Btuh	
	Envelope Subtotal:												6576		Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural						0.12		12600		1		25.9		539		Btuh
Internal gain							Occupants		Btuh/occupant		Appliance		Load				
							3		X 230		+		3200		3890		Btuh
	Sensible Envelope Load:												11005		Btuh		
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)												(DGM of 0.291)		3205		Btuh
													Sensible Load All Zones		14211		Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Little Residence - Holly Glen

, FL

3/15/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11005 Btuh
	Sensible Duct Load	3205 Btuh
	Total Sensible Zone Loads	14211 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14211 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	895 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	367 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1862 Btuh
	TOTAL GAIN	16072 Btuh

EQUIPMENT

1. Central Unit	#	30000 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:
Little Residence - Holly Glen
Building Type: User

, FL

3/15/2023

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	9.0		10.4	94 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	16.0		10.4	166 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	60.0		10.4	624 Btuh
	Window Total				115.0(sqft)			1196 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	260		3.09	802 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	275		3.09	850 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	327		3.09	1009 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	213		3.09	657 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	108		3.09	334 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	25		3.09	77 Btuh
	Wall Total				1207(sqft)			3730 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
2	Insulated - Exterior, n		(0.400)		33		16.0	533 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
	Door Total				73(sqft)			1173Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	1400		1.3	1783 Btuh
	Ceiling Total				1400(sqft)			1783Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	155.0 ft(perim.)		47.2	7316 Btuh
	Floor Total				1400 sqft			7316 Btuh
	Envelope Subtotal:							15199 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	12600	1.00	34.5		1514 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.158)	2646 Btuh
All Zones	Sensible Subtotal All Zones							19358 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Little Residence - Holly Glen
Building Type: User

, FL

3/15/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	19358 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	19358 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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