

Residential System Sizing Calculation

Summary

Project Title:
Streeter Residence

, FL

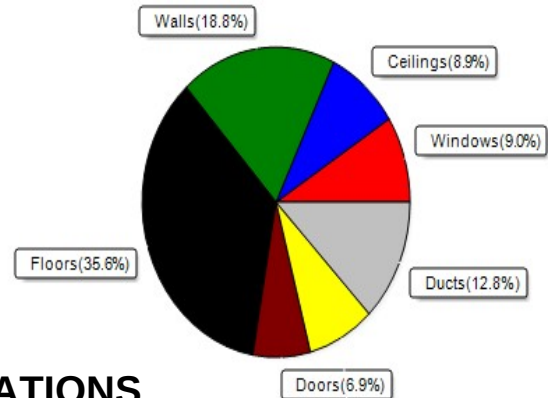
11/20/2024

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	22301 Btuh	Total cooling load calculation	20894 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	161.4 36000	Sensible (SHR = 0.75)	147.9 27000
Heat Pump + Auxiliary(0.0kW)	161.4 36000	Latent	341.7 9000
		Total (Electric Heat Pump)	172.3 36000

WINTER CALCULATIONS

Winter Heating Load (for 1560 sqft)

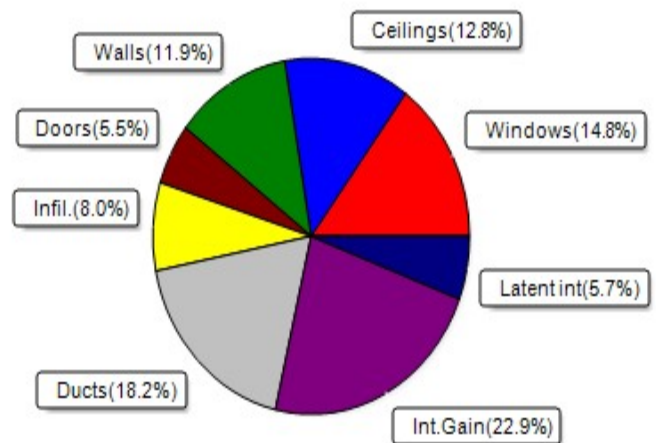
Load component	Load
Window total 194 sqft	2018 Btuh
Wall total 1183 sqft	4200 Btuh
Door total 84 sqft	1546 Btuh
Ceiling total 1560 sqft	1987 Btuh
Floor total 1560 sqft	7930 Btuh
Infiltration 40 cfm	1768 Btuh
Duct loss	2854 Btuh
Subtotal	22301 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	22301 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1560 sqft)

Load component	Load
Window total 194 sqft	3101 Btuh
Wall total 1183 sqft	2485 Btuh
Door total 84 sqft	1159 Btuh
Ceiling total 1560 sqft	2683 Btuh
Floor total	0 Btuh
Infiltration 30 cfm	630 Btuh
Internal gain	4780 Btuh
Duct gain	3422 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	18260 Btuh
Latent gain(ducts)	389 Btuh
Latent gain(infiltration)	1045 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2634 Btuh
TOTAL HEAT GAIN	20894 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 11-20-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Streeter Residence

, FL

11/20/2024

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	0.33, 0.26	No	No	N	1.5ft	2.3ft	108.0	0.0	108.0	12	12	1283	Btuh	
2	2 NFRC	0.33, 0.26	No	No	E	1.5ft	2.3ft	8.0	0.0	8.0	12	37	294	Btuh	
3	2 NFRC	0.33, 0.26	No	No	E	1.5ft	2.3ft	6.0	0.0	6.0	12	37	221	Btuh	
4	2 NFRC	0.33, 0.26	No	No	S	1.5ft	2.3ft	54.0	54.0	0.0	12	14	642	Btuh	
5	2 NFRC	0.33, 0.26	No	No	W	1.5ft	2.3ft	18.0	0.0	18.0	12	37	662	Btuh	
	Window Total							194 (sqft)					3101 Btuh		
Walls	Type					U-Value	R-Value	Area(sqft)		HTM		Load			
						Cav/Sheath									
1	Frame - Wood - Ext					0.09	13.0/0.0	212.0		2.3		480 Btuh			
2	Frame - Wood - Ext					0.09	13.0/0.0	328.0		2.3		742 Btuh			
3	Frame - Wood - Ext					0.09	13.0/0.0	282.0		2.3		638 Btuh			
4	Frame - Wood - Ext					0.09	13.0/0.0	27.0		2.3		61 Btuh			
5	Frame - Wood - Adj					0.09	13.0/0.0	334.0		1.7		563 Btuh			
	Wall Total							1183 (sqft)				2485 Btuh			
Doors	Type							Area (sqft)		HTM		Load			
1	Insulated - Exterior							20.0		13.8		276 Btuh			
2	Insulated - Exterior							20.0		13.8		276 Btuh			
3	Insulated - Exterior							24.0		13.8		331 Btuh			
4	Insulated - Garage							20.0		13.8		276 Btuh			
	Door Total							84 (sqft)				1159 Btuh			
Ceilings	Type/Color/Surface					U-Value	R-Value	Area(sqft)		HTM		Load			
1	Vented Attic/DarkShingle					0.032	30.0/0.0	1560.0		1.72		2683 Btuh			
	Ceiling Total							1560 (sqft)				2683 Btuh			
Floors	Type					R-Value		Size		HTM		Load			
1	Slab On Grade					0.0		1560 (ft-perimeter)		0.0		0 Btuh			
	Floor Total							1560.0 (sqft)				0 Btuh			
	Envelope Subtotal:											9428 Btuh			
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.13		14040		1		30.2		630 Btuh	
Internal gain						Occupants		Btuh/occupant		Appliance		Load			
						6		X 230		+		3400		4780 Btuh	
	Sensible Envelope Load:											14838 Btuh			
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.231)											3422 Btuh			
	Sensible Load All Zones											18260 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Streeter Residence

, FL

11/20/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14838 Btuh
	Sensible Duct Load	3422 Btuh
	Total Sensible Zone Loads	18260 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18260 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1045 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	389 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2634 Btuh
	TOTAL GAIN	20894 Btuh

EQUIPMENT

1. Central Unit	#	36000 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:
Streeter Residence
Building Type: User

, FL

11/20/2024

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 0.33	Vinyl	0.26	N	108.0		10.4	1123 Btuh
2	2, NFRC 0.33	Vinyl	0.26	E	8.0		10.4	83 Btuh
3	2, NFRC 0.33	Vinyl	0.26	E	6.0		10.4	62 Btuh
4	2, NFRC 0.33	Vinyl	0.26	S	54.0		10.4	562 Btuh
5	2, NFRC 0.33	Vinyl	0.26	W	18.0		10.4	187 Btuh
	Window Total				194.0(sqft)			2018 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	212		3.55	753 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	328		3.55	1165 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	282		3.55	1001 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	96 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	334		3.55	1186 Btuh
	Wall Total				1183(sqft)			4200 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh
3	Insulated - Exterior,	n	(0.460)		24		18.4	442 Btuh
4	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
	Door Total				84(sqft)			1546Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	1560		1.3	1987 Btuh
	Ceiling Total				1560(sqft)			1987Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	168.0 ft(perim.)		47.2	7930 Btuh
	Floor Total				1560 sqft			7930 Btuh
	Envelope Subtotal:							17680 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	14040	1.00	40.3		1768 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.147)	2854 Btuh
All Zones	Sensible Subtotal All Zones							22301 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Streeter Residence
Building Type: User

11/20/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	22301 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	22301 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36000 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