

Residential System Sizing Calculation

Summary

Project Title:
Curry Residence

, FL

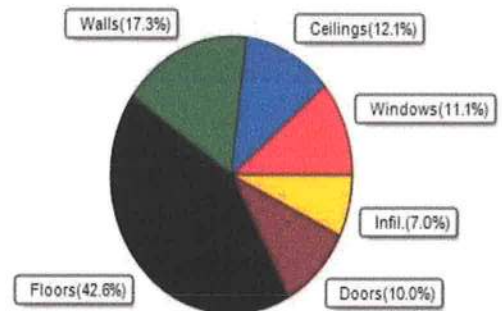


Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(51gr.)			
Winter design temperature(TMY3 99%)	30 F	Summer design temperature(TMY3 99%)	94 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	40 F	Summer temperature difference	19 F
Total heating load calculation	15522 Btuh	Total cooling load calculation	11160 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	154.6 24000	Sensible (SHR = 0.75)	185.2 18000
Heat Pump + Auxiliary(0.0kW)	154.6 24000	Latent	417.0 6000
		Total (Electric Heat Pump)	215.1 24000

WINTER CALCULATIONS

Winter Heating Load (for 1000 sqft)

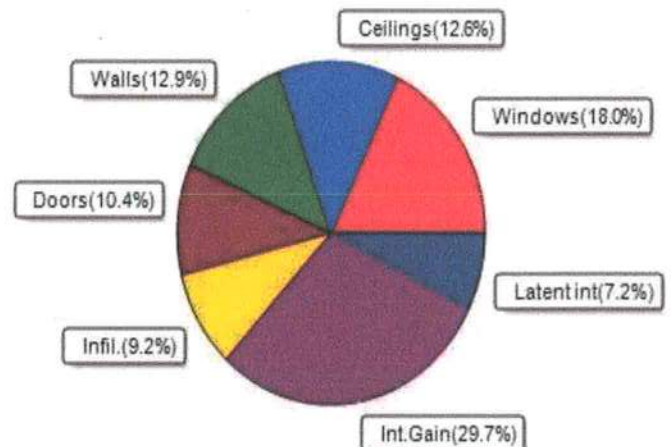
Load component		Load	
Window total	165 sqft	1716 Btuh	
Wall total	871 sqft	2692 Btuh	
Door total	84 sqft	1546 Btuh	
Ceiling total	1000 sqft	1880 Btuh	
Floor total	1000 sqft	6608 Btuh	
Infiltration	25 cfm	1081 Btuh	
Duct loss		0 Btuh	
Subtotal		15522 Btuh	
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
TOTAL HEAT LOSS		15522 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1000 sqft)

Load component		Load	
Window total	165 sqft	2007 Btuh	
Wall total	871 sqft	1440 Btuh	
Door total	84 sqft	1159 Btuh	
Ceiling total	1000 sqft	1410 Btuh	
Floor total		0 Btuh	
Infiltration	18 cfm	385 Btuh	
Internal gain		3320 Btuh	
Duct gain		0 Btuh	
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		9721 Btuh	
Latent gain(ducts)		0 Btuh	
Latent gain(infiltration)		639 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		1439 Btuh	
TOTAL HEAT GAIN		11160 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

10-18-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Curry Residence

, FL

8/30/2024

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	N		1.5ft	1.3ft	18.0	0.0	18.0	9	9	165	Btuh
3	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh
4	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	3.0	0.0	3.0	9	24	73	Btuh
5	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	72.0	72.0	0.0	9	11	659	Btuh
6	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	12.0	12.0	0.0	9	11	110	Btuh
Window Total									165 (sqft)					2007 Btuh	
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext					0.08	19.0/0.0	312.0			1.7		516 Btuh		
2	Frame - Wood - Ext					0.08	19.0/0.0	127.0			1.7		210 Btuh		
3	Frame - Wood - Ext					0.08	19.0/0.0	292.0			1.7		483 Btuh		
4	Frame - Wood - Ext					0.08	19.0/0.0	140.0			1.7		232 Btuh		
Wall Total								871 (sqft)					1440 Btuh		
Doors	Type					Area (sqft)			HTM		Load				
1	Insulated - Exterior					40.0			13.8		552 Btuh				
2	Insulated - Exterior					24.0			13.8		331 Btuh				
3	Insulated - Exterior					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	SnglAsmb no airsp/DarkMetal					0.047	0.0/21.0	1000.0			1.41		1410 Btuh		
Ceiling Total								1000 (sqft)					1410 Btuh		
Floors	Type					R-Value		Size			HTM		Load		
1	Slab On Grade					0.0		1000 (ft-perimeter)			0.0		0 Btuh		
Floor Total								1000.0 (sqft)					0 Btuh		
	Envelope Subtotal:												6016 Btuh		
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.14		8000		1		18.5		385 Btuh	
Internal gain						Occupants		Btuh/occupant			Appliance		Load		
						4		X 230 +			2400		3320 Btuh		
	Sensible Envelope Load:												9721 Btuh		
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)										(DGM of 0.000)		0 Btuh		
	Sensible Load All Zones												9721 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
Curry Residence

Climate: FL_GAINESVILLE_REGIONAL_A

, FL

8/30/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9721 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	9721 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	9721 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	639 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1439 Btuh
	TOTAL GAIN	11160 Btuh

EQUIPMENT

1. Central Unit	#	24000 Btuh
-----------------	---	------------

*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

, FL

Project Title:
Curry Residence
Building Type: User

8/30/2024

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	N	18.0		10.4	187 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4	312 Btuh
4	2, NFRC 0.20	Vinyl	0.26	E	3.0		10.4	31 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	72.0		10.4	749 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	12.0		10.4	125 Btuh
	Window Total				165.0(sqft)			1716 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	312		3.09	964 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	127		3.09	393 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	292		3.09	903 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	140		3.09	433 Btuh
	Wall Total				871(sqft)			2692 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		40		18.4	736 Btuh
2	Insulated - Exterior,	n	(0.460)		24		18.4	442 Btuh
3	Insulated - Exterior,	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	Single as/D/Metal		(0.047)	0.0/21.0	1000		1.9	1880 Btuh
	Ceiling Total				1000(sqft)			1880Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	140.0 ft(perim.)		47.2	6608 Btuh
	Floor Total				1000 sqft			6608 Btuh
	Envelope Subtotal:							14442 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	8000	1.00	24.6		1081 Btuh
Duct load	NA, R0.0, Supply(), Return()						(DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones							15522 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Curry Residence
Building Type: User

8/30/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	15522 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	15522 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24000 Btuh
-----------------------	---	------------

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