

Residential System Sizing Calculation

Summary

Project Title:
New Millennium - Guard House

, FL

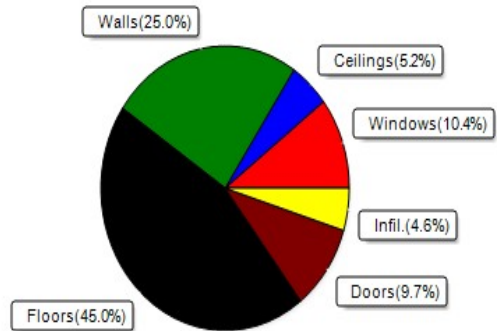
8/7/2024

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	7555	Btuh	Total cooling load calculation	5214	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	158.8	12000	Sensible (SHR = 0.75)	187.3	9000
Heat Pump + Auxiliary(0.0kW)	158.8	12000	Latent	735.9	3000
			Total (Electric Heat Pump)	230.2	12000

WINTER CALCULATIONS

Winter Heating Load (for 310 sqft)

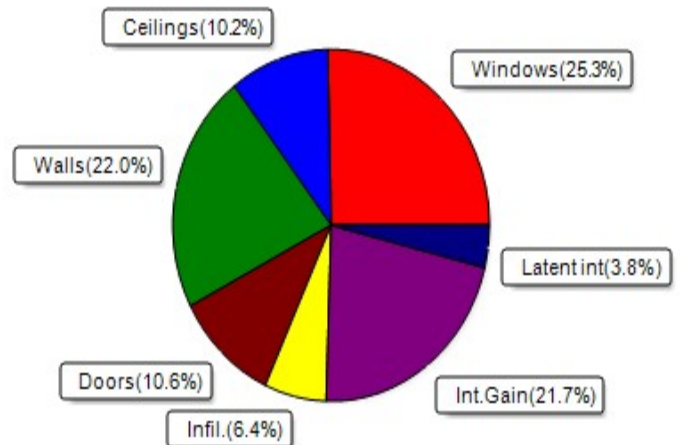
Load component	Load	
Window total	75 sqft	783 Btuh
Wall total	533 sqft	1891 Btuh
Door total	40 sqft	736 Btuh
Ceiling total	310 sqft	395 Btuh
Floor total	310 sqft	3398 Btuh
Infiltration	8 cfm	351 Btuh
Duct loss		0 Btuh
Subtotal		7555 Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS		7555 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 310 sqft)

Load component	Load	
Window total	75 sqft	1321 Btuh
Wall total	533 sqft	1145 Btuh
Door total	40 sqft	552 Btuh
Ceiling total	310 sqft	533 Btuh
Floor total		0 Btuh
Infiltration	6 cfm	125 Btuh
Internal gain		1130 Btuh
Duct gain		0 Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		4806 Btuh
Latent gain(ducts)		0 Btuh
Latent gain(infiltration)		208 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		200 Btuh
Total latent gain		408 Btuh
TOTAL HEAT GAIN		5214 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 8-7-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
New Millennium - Guard House

, FL

8/7/2024

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	33.3	0.0	33.3	9	9	304 Btuh
2	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	21.0	0.0	21.0	9	24	509 Btuh
3	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	21.0	0.0	21.0	9	24	509 Btuh
Window Total								75 (sqft)					1321 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load			
				Cav/Sheath									
1	Frame - Wood - Ext	0.09	13.0/0.0			92.8		2.3		210 Btuh			
2	Frame - Wood - Ext	0.09	13.0/0.0			157.0		2.3		355 Btuh			
3	Frame - Wood - Adj	0.09	13.0/0.0			106.0		1.7		179 Btuh			
4	Frame - Wood - Ext	0.09	13.0/0.0			177.0		2.3		401 Btuh			
Wall Total						533 (sqft)				1145 Btuh			
Doors	Type	Area (sqft)		HTM		Load							
1	Insulated - Exterior	20.0		13.8		276 Btuh							
2	Insulated - Garage	20.0		13.8		276 Btuh							
Door Total		40 (sqft)				552 Btuh							
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load							
1	Vented Attic/DarkShingle	0.032	30.0/0.0	310.0	1.72	533 Btuh							
Ceiling Total				310 (sqft)		533 Btuh							
Floors	Type	R-Value		Size	HTM	Load							
1	Slab On Grade	0.0		310 (ft-perimeter)	0.0	0 Btuh							
Floor Total				310.0 (sqft)		0 Btuh							
Envelope Subtotal:						3551 Btuh							
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load							
	Natural	0.13	2790	1	6.0	125 Btuh							
Internal gain	Occupants	Btuh/occupant	Appliance	Load									
	1	X 230	+ 900	1130 Btuh									
Sensible Envelope Load:						4806 Btuh							
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)				(DGM of 0.000)		0 Btuh						
Sensible Load All Zones						4806 Btuh							

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 New Millennium - Guard House

, FL

8/7/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	4806 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	4806 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	4806 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	208 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (1.0 people @ 200 Btuh per person)	200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	408 Btuh
	TOTAL GAIN	5214 Btuh

EQUIPMENT

1. Central Unit	#	12000 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(1/2))
 (Ornt - compass orientation)



Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:

New Millennium - Guard House

Building Type: User

, FL

8/7/2024

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	33.3		10.4	346 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	21.0		10.4	218 Btuh
3	2, NFRC 0.20	Vinyl	0.26	W	21.0		10.4	218 Btuh
Window Total					75.3(sqft)			783 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	329 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	157		3.55	557 Btuh
3	Frame - Wood	- Adj	(0.089)	13.0/0.0	106		3.55	376 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	177		3.55	628 Btuh
Wall Total					533(sqft)			1891 Btuh
Doors	Type	Storm	Ueff.	R-Value	Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh
2	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area	X	HTM=	Load	
1	Flat ceil/D/Shing	(0.032)	30.0/0.0	310		1.3	395 Btuh	
Ceiling Total					310(sqft)			395Btuh
Floors	Type	Ueff.	R-Value	Size	X	HTM=	Load	
1	Slab On Grade	(1.180)	0.0	72.0 ft(perim.)		47.2	3398 Btuh	
Floor Total					310 sqft			3398 Btuh
Envelope Subtotal:								7203 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
	Natural		0.17	2790	1.00	8.0	351 Btuh	
Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)						0 Btuh	
All Zones	Sensible Subtotal All Zones							7555 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
New Millennium - Guard House
Building Type: User

, FL

8/7/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	7555 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	7555 Btuh

EQUIPMENT

1. Electric Heat Pump	#	12000 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