

Residential System Sizing Calculation

Summary

Patty & Chris Hetrick
3897 SW Pinemount
Lake City, FL

Project Title:
211471 Hetrick Poolhouse

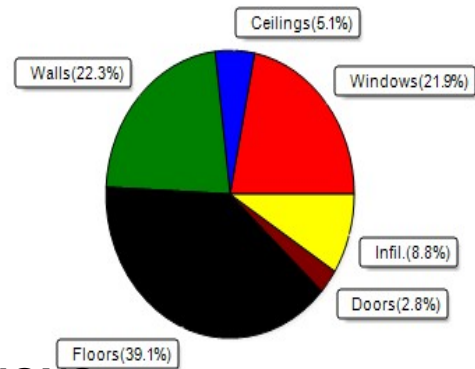
2021-10-28

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 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	11590 Btuh	Total cooling load calculation	10073 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Window/Wall Heat Pump)	107.9 12500	Sensible (SHR = 0.75)	103.4 9375
Heat Pump + Auxiliary(0.0kW)	107.9 12500	Latent	311.1 3125
		Total (Window/Wall Heat Pump)	124.1 12500

WINTER CALCULATIONS

Winter Heating Load (for 584 sqft)

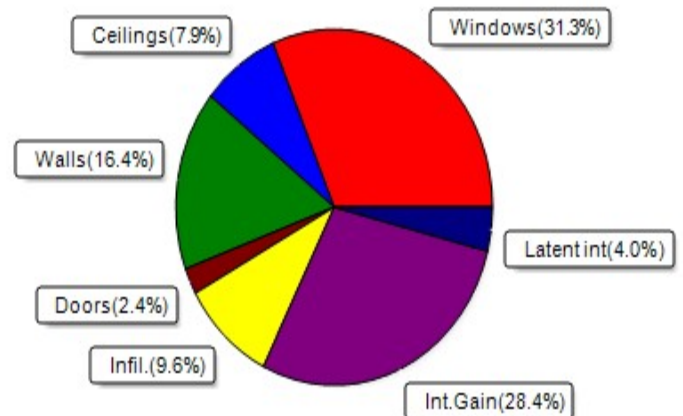
Load component		Load	
Window total	211 sqft	2536	Btuh
Wall total	729 sqft	2587	Btuh
Door total	20 sqft	320	Btuh
Ceiling total	584 sqft	593	Btuh
Floor total	584 sqft	4531	Btuh
Infiltration	23 cfm	1023	Btuh
Duct loss		0	Btuh
Subtotal		11590	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		11590	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 584 sqft)

Load component		Load	
Window total	211 sqft	3154	Btuh
Wall total	729 sqft	1649	Btuh
Door total	20 sqft	240	Btuh
Ceiling total	584 sqft	800	Btuh
Floor total		0	Btuh
Infiltration	18 cfm	364	Btuh
Internal gain		2860	Btuh
Duct gain		0	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		9068	Btuh
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		605	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		400	Btuh
Total latent gain		1005	Btuh
TOTAL HEAT GAIN		10073	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2021-10-28**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Patty & Chris Hetrick
3897 SW Pinemount
Lake City, FL

Project Title:
211471 Hetrick Poolhouse
Building Type: User

2021-10-28

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House							
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	Load
1	2, NFRC 0.22	Vinyl	0.30	N	30.0	12.0	360 Btuh
2	2, NFRC 0.22	Vinyl	0.30	E	96.0	12.0	1152 Btuh
3	2, NFRC 0.22	Vinyl	0.30	S	80.0	12.0	960 Btuh
4	2, NFRC 0.22	Vinyl	0.30	W	5.3	12.0	64 Btuh
	Window Total				211.3(sqft)		2536 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	190	3.55	675 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	144	3.55	511 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	140	3.55	497 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	255	3.55	904 Btuh
	Wall Total				729(sqft)		2587 Btuh
Doors	Type	Storm	Ueff.		Area	X	Load
1	Insulated - Exterior, n		(0.400)		20	16.0	320 Btuh
	Door Total				20(sqft)		320Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	Load
1	Vented Attic/D/Shing		(0.025)	38.0/0.0	584	1.0	593 Btuh
	Ceiling Total				584(sqft)		593Btuh
Floors	Type		Ueff.	R-Value	Size	X	Load
1	Slab On Grade		(1.180)	0.0	96.0 ft(perim.)	47.2	4531 Btuh
	Floor Total				584 sqft		4531 Btuh
	Envelope Subtotal:						10567 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.24	5840	1.00	23.4	1023 Btuh
Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)						0 Btuh
All Zones	Sensible Subtotal All Zones						11590 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Patty & Chris Hetrick
3897 SW Pinemount
Lake City, FL

Project Title:
211471 Hetrick Poolhouse
Building Type: User

2021-10-28

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	11590 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	11590 Btuh

EQUIPMENT

1. Window/Wall Heat Pump	#	12500 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

Patty & Chris Hetrick
3897 SW Pinemount
Lake City, FL

Project Title:
211471 Hetrick Poolhouse

2021-10-28

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

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	0.22, 0.30	No	No	N		1.5ft	7.0ft	30.0	0.0	30.0	10	27	807	Btuh	
2	2 NFRC	0.22, 0.30	No	No	E		9.5ft	1.5ft	96.0	0.0	96.0	10	10	991	Btuh	
3	2 NFRC	0.22, 0.30	No	No	S		8.0ft	1.5ft	80.0	51.4	28.6	10	27	1300	Btuh	
4	2 NFRC	0.22, 0.30	No	No	W		1.5ft	1.5ft	5.3	5.3	0.0	10	12	55	Btuh	
	Window Total								211 (sqft)					3154 Btuh		
Walls	Type	U-Value						R-Value		Area(sqft)		HTM		Load		
								Cav/Sheath								
1	Frame - Wood - Ext							0.09		13.0/0.0		190.0		2.3		430 Btuh
2	Frame - Wood - Ext							0.09		13.0/0.0		144.0		2.3		326 Btuh
3	Frame - Wood - Ext							0.09		13.0/0.0		140.0		2.3		317 Btuh
4	Frame - Wood - Ext							0.09		13.0/0.0		254.7		2.3		576 Btuh
	Wall Total										729 (sqft)				1649 Btuh	
Doors	Type	U-Value						R-Value		Area (sqft)		HTM		Load		
1	Insulated - Exterior									20.0		12.0		240 Btuh		
	Door Total										20 (sqft)				240 Btuh	
Ceilings	Type/Color/Surface	U-Value						R-Value		Area(sqft)		HTM		Load		
1	Vented Attic/DarkShingle	0.025						38.0/0.0		584.0		1.37		800 Btuh		
	Ceiling Total										584 (sqft)				800 Btuh	
Floors	Type	U-Value						R-Value		Size		HTM		Load		
1	Slab On Grade							0.0		584 (ft-perimeter)		0.0		0 Btuh		
	Floor Total										584.0 (sqft)				0 Btuh	
	Envelope Subtotal:														5844 Btuh	
Infiltration	Type	Average ACH						Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural	0.18						5840		1		17.5		364 Btuh		
Internal gain		Occupants						Btuh/occupant		Appliance		Load				
		2						X 230		+		2400		2860 Btuh		
	Sensible Envelope Load:														9068 Btuh	
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)										(DGM of 0.000)				0 Btuh	
	Sensible Load All Zones														9068 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Patty & Chris Hetrick
3897 SW Pinemount
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
211471 Hetrick Poolhouse

2021-10-28

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9068 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	9068 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	9068 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	605 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1005 Btuh
	TOTAL GAIN	10073 Btuh

EQUIPMENT

1. PTAC and Room Unit	#	12500 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