

Residential System Sizing Calculation

Summary

Megan Holloway

Project Title:
Megan Holloway

High Springs, FL

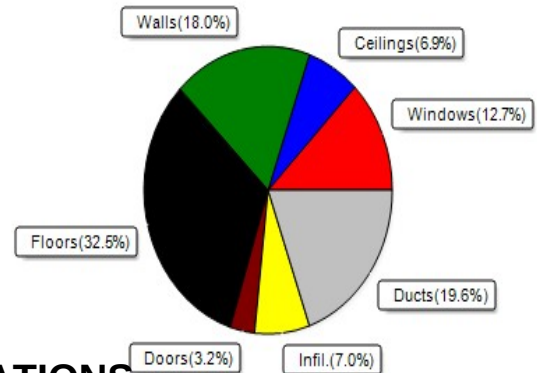
7/20/2022

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	32635	Btuh	Total cooling load calculation	24204	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	32635	Sensible (SHR = 0.70)	84.6	16943
Heat Pump + Auxiliary(0.0kW)	100.0	32635	Latent	173.4	7261
			Total (Electric Heat Pump)	100.0	24204

WINTER CALCULATIONS

Winter Heating Load (for 2115 sqft)

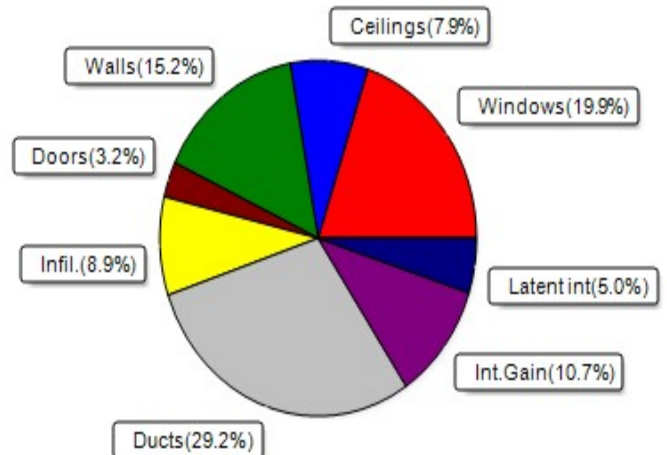
Load component		Load	
Window total	288 sqft	4152	Btuh
Wall total	1656 sqft	5879	Btuh
Door total	57 sqft	1043	Btuh
Ceiling total	2220 sqft	2254	Btuh
Floor total	2115 sqft	10620	Btuh
Infiltration	52 cfm	2283	Btuh
Duct loss		6405	Btuh
Subtotal		32635	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		32635	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2115 sqft)

Load component		Load	
Window total	288 sqft	4823	Btuh
Wall total	1656 sqft	3674	Btuh
Door total	57 sqft	782	Btuh
Ceiling total	2220 sqft	1916	Btuh
Floor total		0	Btuh
Infiltration	39 cfm	813	Btuh
Internal gain		2580	Btuh
Duct gain		5430	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		20017	Btuh
Latent gain(ducts)		1637	Btuh
Latent gain(infiltration)		1349	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		4187	Btuh
TOTAL HEAT GAIN		24204	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 7 / 20 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Megan Holloway
High Springs, FL

Project Title:
Megan Holloway
Building Type: User

7/20/2022

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	HTM=	Load	
1	2, NFRC 0.25	Vinyl	0.36	S	60.0		14.4	864 Btuh	
2	2, NFRC 0.25	TIM	0.36	S	13.3		14.4	192 Btuh	
3	2, NFRC 0.25	Vinyl	0.36	E	4.0		14.4	58 Btuh	
4	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh	
5	2, NFRC 0.25	Metal	0.36	N	60.0		14.4	864 Btuh	
6	2, NFRC 0.25	TIM	0.36	NE	20.0		14.4	288 Btuh	
7	2, NFRC 0.25	Vinyl	0.36	E	24.0		14.4	346 Btuh	
8	2, NFRC 0.25	Vinyl	0.36	NE	18.0		14.4	259 Btuh	
9	2, NFRC 0.25	Vinyl	0.36	N	24.0		14.4	346 Btuh	
10	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh	
11	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh	
	Window Total					288.3(sqft)			4152 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load	
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	222		3.55	787 Btuh	
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	260		3.55	923 Btuh	
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	195		3.55	692 Btuh	
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	16		3.55	57 Btuh	
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	21		3.55	75 Btuh	
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh	
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	96 Btuh	
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	85		3.55	303 Btuh	
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	151		3.55	536 Btuh	
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	366		3.55	1299 Btuh	
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	129		3.55	458 Btuh	
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	102		3.55	362 Btuh	
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	227 Btuh	
	Wall Total					1656(sqft)			5879 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)		17		18.4	307 Btuh	
3	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh	
	Door Total					57(sqft)			1043Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load	
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	2220		1.0	2254 Btuh	
	Ceiling Total					2220(sqft)			2254Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load	
1	Slab On Grade		(1.180)	0.0	225.0 ft(perim.)		47.2	10620 Btuh	
	Floor Total					2115 sqft			10620 Btuh
	Envelope Subtotal:							23948 Btuh	

Manual J Winter Calculations

Residential Load - Component Details (continued)

Megan Holloway
High Springs, FL

Project Title:
Megan Holloway
Building Type: User

7/20/2022

Infiltration	Type Natural	Wholehouse ACH 0.16	Volume(cuft) 19035	Wall Ratio 1.00	CFM= 52.1	2283 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.244)					6405 Btuh
All Zones	Sensible Subtotal All Zones					32635 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	32635 Btuh 0 Btuh 32635 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32635 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

Megan Holloway

Project Title:
Megan Holloway

High Springs, FL

7/20/2022

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	0.25, 0.36	No	No	S		9.5ft.	1.0ft.	60.0	60.0	0.0	12	14	726	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		9.5ft.	1.0ft.	13.3	13.3	0.0	12	14	161	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	5.0ft.	4.0	0.0	4.0	12	31	124	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	3.0ft.	15.0	0.0	15.0	12	31	464	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		20.5f	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh
6	2 NFRC	0.25, 0.36	No	No	NE		15.5f	1.0ft.	20.0	0.0	20.0	12	24	473	Btuh
7	2 NFRC	0.25, 0.36	No	No	E		15.5f	1.0ft.	24.0	24.0	0.0	12	31	290	Btuh
8	2 NFRC	0.25, 0.36	No	No	NE		12.5f	1.0ft.	18.0	0.0	18.0	12	24	426	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	24.0	0.0	24.0	12	12	290	Btuh
10	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	20.0	0.0	20.0	12	12	242	Btuh
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
Window Total									288 (sqft)					4823 Btuh	
Walls	Type	U-Value			R-Value			Area(sqft)			HTM		Load		
1	Frame - Wood - Ext						0.09	13.0/0.0		221.7		2.3		502	Btuh
2	Frame - Wood - Ext						0.09	13.0/0.0		260.0		2.3		588	Btuh
3	Frame - Wood - Ext						0.09	13.0/0.0		195.0		2.3		441	Btuh
4	Frame - Wood - Ext						0.09	13.0/0.0		16.0		2.3		36	Btuh
5	Frame - Wood - Ext						0.09	13.0/0.0		21.0		2.3		48	Btuh
6	Frame - Wood - Ext						0.09	13.0/0.0		18.0		2.3		41	Btuh
7	Frame - Wood - Ext						0.09	13.0/0.0		27.0		2.3		61	Btuh
8	Frame - Wood - Ext						0.09	13.0/0.0		85.3		2.3		193	Btuh
9	Frame - Wood - Ext						0.09	13.0/0.0		151.0		2.3		342	Btuh
10	Frame - Wood - Ext						0.09	13.0/0.0		366.0		2.3		828	Btuh
11	Frame - Wood - Adj						0.09	13.0/0.0		129.0		1.7		218	Btuh
12	Frame - Wood - Ext						0.09	13.0/0.0		102.0		2.3		231	Btuh
13	Frame - Wood - Ext						0.09	13.0/0.0		64.0		2.3		145	Btuh
Wall Total									1656 (sqft)					3674 Btuh	
Doors	Type	U-Value			R-Value			Area (sqft)			HTM		Load		
1	Insulated - Exterior									20.0		13.8		276	Btuh
2	Insulated - Exterior									16.7		13.8		230	Btuh
3	Insulated - Exterior									20.0		13.8		276	Btuh
Door Total									57 (sqft)					782 Btuh	
Ceilings	Type/Color/Surface	U-Value			R-Value			Area(sqft)			HTM		Load		
1	Vented Attic/Light/Shingle/RB						0.025	38.0/0.0		2220.0		0.86		1916	Btuh
Ceiling Total									2220 (sqft)					1916 Btuh	
Floors	Type	U-Value			R-Value			Size			HTM		Load		
1	Slab On Grade							0.0		2115 (ft-perimeter)		0.0		0	Btuh
Floor Total									2115.0 (sqft)					0 Btuh	
Envelope Subtotal:														11194 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Megan Holloway

Project Title:
Megan Holloway

Climate:FL_GAINESVILLE_REGIONAL_A

High Springs, FL

7/20/2022

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 19035	Wall Ratio 1	CFM= 39.1	Load 813 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
	Sensible Envelope Load:					14587 Btuh
Duct load	Averagesealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.372)					5430 Btuh
	Sensible Load All Zones					20017 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Megan Holloway

Project Title:
Megan Holloway

Climate:FL_GAINESVILLE_REGIONAL_A

High Springs, FL

7/20/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14587 Btuh
	Sensible Duct Load	5430 Btuh
	Total Sensible Zone Loads	20017 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20017 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1349 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1637 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4187 Btuh
	TOTAL GAIN	24204 Btuh

EQUIPMENT

1. Central Unit	#	24204 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