

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 10 Rolling Meadows

Lake City, FL 32025

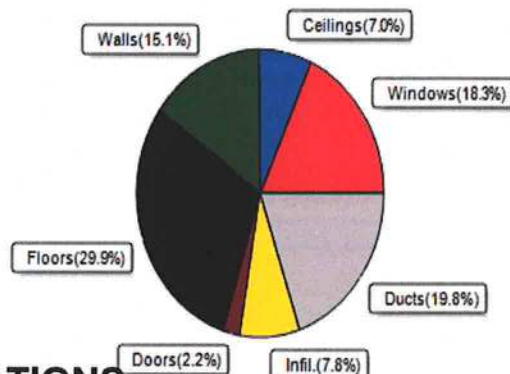
5/21/2020

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	32774 Btuh	Total cooling load calculation	26666 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 32774	Sensible (SHR = 0.70)	84.8 18667
Heat Pump + Auxiliary(0.0kW)	100.0 32774	Latent	172.3 8000
		Total (Electric Heat Pump)	100.0 26666

WINTER CALCULATIONS

Winter Heating Load (for 2145 sqft)

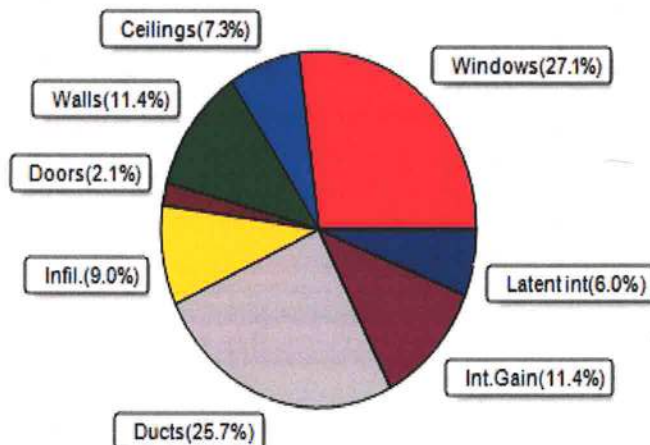
Load component		Load	
Window total	416 sqft	5995	Btuh
Wall total	1392 sqft	4941	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	2252 sqft	2286	Btuh
Floor total	2145 sqft	9786	Btuh
Infiltration	58 cfm	2542	Btuh
Duct loss		6487	Btuh
Subtotal		32774	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		32774	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2145 sqft)

Load component		Load	
Window total	416 sqft	7234	Btuh
Wall total	1392 sqft	3035	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	2252 sqft	1943	Btuh
Floor total		0	Btuh
Infiltration	44 cfm	906	Btuh
Internal gain		3040	Btuh
Duct gain		5314	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		22024	Btuh
Latent gain(ducts)		1539	Btuh
Latent gain(infiltration)		1503	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		4642	Btuh
TOTAL HEAT GAIN		26666	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE:

5/22/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32025

Project Title:
Lot 10 Rolling Meadows
Building Type: User

5/21/2020

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	36.0		14.4	518 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	13.3		14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	5.0		14.4	72 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	36.0		14.4	518 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	72.0		14.4	1037 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	60.0		14.4	864 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
8	2, NFRC 0.25	Vinyl	0.36	E	36.0		14.4	518 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	36.0		14.4	518 Btuh
10	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	16.0		14.4	230 Btuh
12	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
13	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
Window Total					416.3(sqft)			5995 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	54		3.55	192 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	37		3.55	130 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	54		3.55	192 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	126		3.55	447 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	112		3.55	398 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	239		3.55	849 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	346		3.55	1228 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	199		3.55	707 Btuh
Wall Total					1392(sqft)			4941 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior,	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	Vented Attic/L/Shing		(0.025)	38.0/0.0	2252		1.0	2286 Btuh
Ceiling Total					2252(sqft)			2286Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	207.3 ft(perim.)		47.2	9786 Btuh
Floor Total					2145 sqft			9786 Btuh
Envelope Subtotal:								23744 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32025

Project Title:
Lot 10 Rolling Meadows
Building Type: User

5/21/2020

Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 19305	Wall Ratio 1.00	CFM= 58.1	2542 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.247)					6487 Btuh
All Zones	Sensible Subtotal All Zones					32774 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	32774 Btuh 0 Btuh 32774 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32774 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

N/A

Project Title:
Lot 10 Rolling Meadows

Lake City, FL 32025

5/21/2020

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	1.5ft.	1.0ft.	36.0	36.0	0.0	12	14	436	Btuh	
2	2 NFRC	0.25, 0.36	No	No	S	8.0ft.	1.0ft.	13.3	13.3	0.0	12	14	161	Btuh	
3	2 NFRC	0.25, 0.36	No	No	S	8.0ft.	0.5ft.	5.0	5.0	0.0	12	14	60	Btuh	
4	2 NFRC	0.25, 0.36	No	No	S	13.0f	1.0ft.	36.0	36.0	0.0	12	14	436	Btuh	
5	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	72.0	2.9	69.1	12	31	2172	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N	13.0f	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh	
7	2 NFRC	0.25, 0.36	No	No	N	13.0f	1.0ft.	20.0	0.0	20.0	12	12	242	Btuh	
8	2 NFRC	0.25, 0.36	No	No	E	10.0f	1.0ft.	36.0	36.0	0.0	12	31	436	Btuh	
9	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	36.0	0.0	36.0	12	12	436	Btuh	
10	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73	Btuh	
11	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	16.0	0.0	16.0	12	12	194	Btuh	
12	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh	
13	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh	
14	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								416 (sqft)					7234 Btuh		
Walls	Type					U-Value		R-Value		Area(sqft)		HTM		Load	
								Cav/Sheath							
1	Frame - Wood - Ext					0.09		13.0/0.0		72.0		2.3		163 Btuh	
2	Frame - Wood - Ext					0.09		13.0/0.0		54.0		2.3		122 Btuh	
3	Frame - Wood - Ext					0.09		13.0/0.0		36.7		2.3		83 Btuh	
4	Frame - Wood - Ext					0.09		13.0/0.0		54.0		2.3		122 Btuh	
5	Frame - Wood - Ext					0.09		13.0/0.0		81.0		2.3		183 Btuh	
6	Frame - Wood - Ext					0.09		13.0/0.0		126.0		2.3		285 Btuh	
7	Frame - Wood - Ext					0.09		13.0/0.0		112.0		2.3		253 Btuh	
8	Frame - Wood - Ext					0.09		13.0/0.0		72.0		2.3		163 Btuh	
9	Frame - Wood - Ext					0.09		13.0/0.0		239.0		2.3		541 Btuh	
10	Frame - Wood - Ext					0.09		13.0/0.0		346.0		2.3		783 Btuh	
11	Frame - Wood - Adj					0.09		13.0/0.0		199.0		1.7		336 Btuh	
Wall Total								1392 (sqft)					3035 Btuh		
Doors	Type									Area (sqft)		HTM		Load	
1	Insulated - Garage									20.0		13.8		276 Btuh	
2	Insulated - Exterior									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 AtticLight/Shingle/RB					0.025		38.0/0.0		2252.0		0.86		1943 Btuh	
Ceiling Total								2252 (sqft)					1943 Btuh		
Floors	Type							R-Value		Size		HTM		Load	
1	Slab On Grade							0.0		2145 (ft-perimeter)		0.0		0 Btuh	
Floor Total								2145.0 (sqft)					0 Btuh		
Envelope Subtotal:													12765 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 10 Rolling Meadows

Lake City, FL 32025

5/21/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 19305	Wall Ratio 1	CFM= 43.5	Load 906 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
	Sensible Envelope Load:					16710 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.318)					5314 Btuh
	Sensible Load All Zones					22024 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 10 Rolling Meadows

Lake City, FL 32025

5/21/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16710 Btuh
	Sensible Duct Load	5314 Btuh
	Total Sensible Zone Loads	22024 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	22024 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1503 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1539 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4642 Btuh
	TOTAL GAIN	26666 Btuh

EQUIPMENT

1. Central Unit	#	26666 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