

Residential System Sizing Calculation

Summary

Project Title:

Lot 10 Forest Country, 6th ed

Lake City, FL 32025

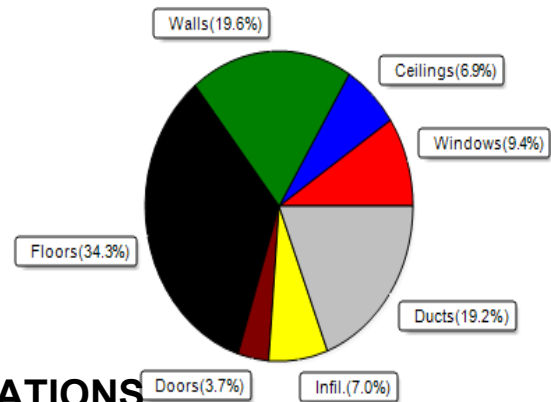
1/26/2022

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	30972 Btuh	Total cooling load calculation	22021 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 30972	Sensible (SHR = 0.70)	85.4 15362
Heat Pump + Auxiliary(0.0kW)	100.0 30972	Latent	163.3 6584
		Total (Electric Heat Pump)	99.7 21945

WINTER CALCULATIONS

Winter Heating Load (for 2001 sqft)

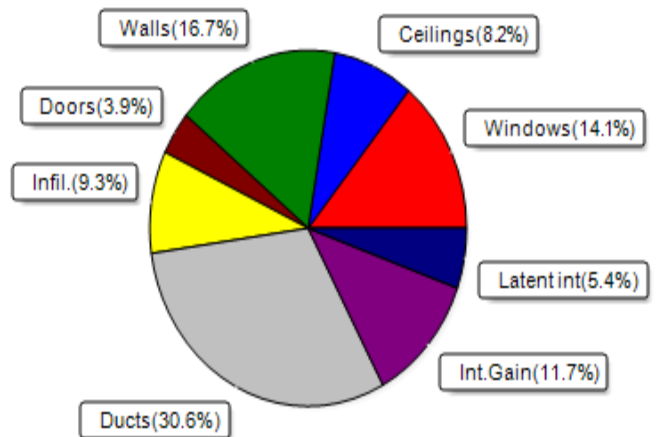
Load component		Load	
Window total	202 sqft	2904 Btuh	
Wall total	1710 sqft	6070 Btuh	
Door total	63 sqft	1153 Btuh	
Ceiling total	2101 sqft	2133 Btuh	
Floor total	2001 sqft	10620 Btuh	
Infiltration	49 cfm	2160 Btuh	
Duct loss		5932 Btuh	
Subtotal		30972 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		30972 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 2001 sqft)

Load component		Load	
Window total	202 sqft	3099 Btuh	
Wall total	1710 sqft	3686 Btuh	
Door total	63 sqft	865 Btuh	
Ceiling total	2101 sqft	1813 Btuh	
Floor total		0 Btuh	
Infiltration	37 cfm	769 Btuh	
Internal gain		2580 Btuh	
Duct gain		5179 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		17991 Btuh	
Latent gain(ducts)		1554 Btuh	
Latent gain(infiltration)		1277 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1200 Btuh	
Total latent gain		4030 Btuh	
TOTAL HEAT GAIN		22021 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE: 1 / 24 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32025

Project Title:
Lot 10 Forest Country, 6th ed
Building Type: User

1/26/2022

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	45.0		14.4	648 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	42.7		14.4	614 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
8	2, NFRC 0.25	Vinyl	0.36	W	10.0		14.4	144 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	8.0		14.4	115 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	10.0		14.4	144 Btuh
Window Total					201.7(sqft)			2904 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	152		3.55	541 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	336		3.55	1193 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	174		3.55	619 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	168		3.55	596 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	221		3.55	785 Btuh
10	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	141		3.55	501 Btuh
Wall Total					1710(sqft)			6070 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		43		18.4	785 Btuh
2	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					63(sqft)			1153Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	2101		1.0	2133 Btuh
Ceiling Total					2101(sqft)			2133Btuh
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					2001 sqft			10620 Btuh
Envelope Subtotal:								22880 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	18009	1.00	49.3		2160 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.237)							5932 Btuh

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Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 10 Forest Country, 6th ed
Building Type: User

1/26/2022

All Zones	Sensible Subtotal All Zones	30972 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	30972 Btuh 0 Btuh 30972 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	30972 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

Project Title:

Lot 10 Forest Country, 6th ed

Lake City, FL 32025

1/26/2022

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		6.5ft.	0.5ft.	45.0	45.0	0.0	12	14	544 Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181 Btuh	
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	1.0	5.0	12	31	167 Btuh	
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181 Btuh	
5	2 NFRC	0.25, 0.36	No	No	N		8.5ft.	0.3ft.	42.7	0.0	42.7	12	12	516 Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		8.5ft.	0.3ft.	20.0	0.0	20.0	12	12	242 Btuh	
7	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	4.0ft.	30.0	0.0	30.0	12	12	363 Btuh	
8	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	10.0	0.5	9.5	12	31	300 Btuh	
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	8.0	1.0	7.0	12	31	229 Btuh	
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	10.0	0.6	9.4	12	31	298 Btuh	
	Excursion													76 Btuh	
	Window Total								202 (sqft)					3099 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext	0.09	13.0/0.0	152.3	2.3	345 Btuh									
2	Frame - Wood - Ext	0.09	13.0/0.0	96.0	2.3	217 Btuh									
3	Frame - Wood - Ext	0.09	13.0/0.0	336.0	2.3	760 Btuh									
4	Frame - Wood - Ext	0.09	13.0/0.0	99.0	2.3	224 Btuh									
5	Frame - Wood - Ext	0.09	13.0/0.0	63.0	2.3	143 Btuh									
6	Frame - Wood - Ext	0.09	13.0/0.0	174.3	2.3	395 Btuh									
7	Frame - Wood - Ext	0.09	13.0/0.0	81.0	2.3	183 Btuh									
8	Frame - Wood - Ext	0.09	13.0/0.0	168.0	2.3	380 Btuh									
9	Frame - Wood - Ext	0.09	13.0/0.0	221.0	2.3	500 Btuh									
10	Frame - Wood - Adj	0.09	13.0/0.0	178.0	1.7	300 Btuh									
11	Frame - Wood - Adj	0.09	13.0/0.0	141.0	1.7	238 Btuh									
	Wall Total			1710 (sqft)		3686 Btuh									
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior	42.7	13.8	589 Btuh											
2	Insulated - Garage	20.0	13.8	276 Btuh											
	Door Total		63 (sqft)		865 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	2101.0	0.86	1813 Btuh									
	Ceiling Total			2101 (sqft)		1813 Btuh									
Floors	Type	R-Value		Size		HTM	Load								
1	Slab On Grade	0.0	2001 (ft-perimeter)	0.0	0 Btuh										
	Floor Total		2001.0 (sqft)		0 Btuh										
	Envelope Subtotal:							9462 Btuh							

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 10 Forest Country, 6th ed

Lake City, FL 32025

1/26/2022

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 18009	Wall Ratio 1	CFM= 37.0	Load 769 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	12812 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.404)					5179 Btuh
					Sensible Load All Zones	17991 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
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Lake City, FL 32025

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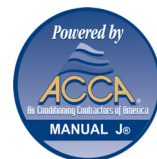
WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12812 Btuh
	Sensible Duct Load	5179 Btuh
	Total Sensible Zone Loads	17991 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17991 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1277 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1554 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4030 Btuh
	TOTAL GAIN	22021 Btuh

EQUIPMENT

1. Central Unit	#	21945 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