

Residential System Sizing Calculation

Summary

N/A

Project Title:
Lot 24 Cannon Creek Place

Lake City, FL 32024

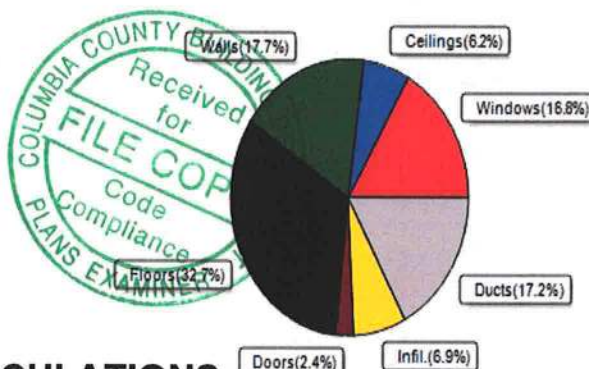
6/3/2020

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	30302 Btuh	Total cooling load calculation	21238 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	106.3 32200	Sensible (SHR = 0.85)	108.8 19520
Heat Pump + Auxiliary(0.0kW)	106.3 32200	Latent	104.3 3445
		Total (Electric Heat Pump)	108.1 22965

WINTER CALCULATIONS

Winter Heating Load (for 1771 sqft)

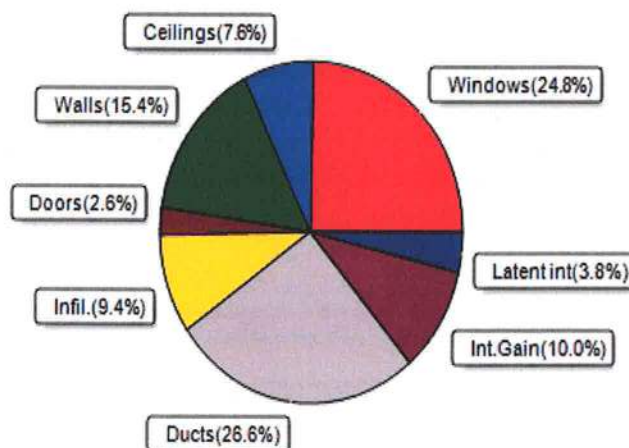
Load component		Load	
Window total	353 sqft	5088 Btuh	
Wall total	1513 sqft	5373 Btuh	
Door total	40 sqft	736 Btuh	
Ceiling total	1860 sqft	1888 Btuh	
Floor total	1771 sqft	9912 Btuh	
Infiltration	48 cfm	2099 Btuh	
Duct loss		5205 Btuh	
Subtotal		30302 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		30302 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1771 sqft)

Load component		Load	
Window total	353 sqft	5259 Btuh	
Wall total	1513 sqft	3269 Btuh	
Door total	40 sqft	552 Btuh	
Ceiling total	1860 sqft	1605 Btuh	
Floor total		0 Btuh	
Infiltration	36 cfm	748 Btuh	
Internal gain		2120 Btuh	
Duct gain		4383 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		17937 Btuh	
Latent gain(ducts)		1261 Btuh	
Latent gain(infiltration)		1241 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		3302 Btuh	
TOTAL HEAT GAIN		21238 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE:

6/10/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32024

Project Title:
Lot 24 Cannon Creek Place
Building Type: User

6/3/2020

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	16.0		14.4	230 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	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	25.0		14.4	360 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
10	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
12	2, NFRC 0.25	Vinyl	0.36	E	20.0		14.4	288 Btuh
13	2, NFRC 0.25	Vinyl	0.36	N	72.0		14.4	1037 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
Window Total					353.3(sqft)			5088 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.55	322 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	42		3.55	148 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	23		3.55	83 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	284 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	294		3.55	1042 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	208		3.55	737 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	34		3.55	121 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	342 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	178 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	266		3.55	943 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	93		3.55	330 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
Wall Total					1514(sqft)			5373 Btuh
Doors	Type	Storm	Ueff.		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	Vented Attic/L/Shing		(0.025)	38.0/0.0	1860		1.0	1888 Btuh
Ceiling Total					1860(sqft)			1888Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	210.0 ft(perim.)		47.2	9912 Btuh
Floor Total					1771 sqft			9912 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32024

Project Title:
Lot 24 Cannon Creek Place
Building Type: User

6/3/2020

	Envelope Subtotal:						22998 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 15939	Wall Ratio 1.00	CFM= 47.9		2099 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.207)						5205 Btuh
All Zones	Sensible Subtotal All Zones						30302 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss						30302 Btuh
	Ventilation Sensible Heat Loss						0 Btuh
	Total Heat Loss						30302 Btuh

EQUIPMENT

1. Electric Heat Pump	#	32200 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 24 Cannon Creek Place

Lake City, FL 32024

6/3/2020

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	
1	2 NFRC	0.25, 0.36	No	No	S	1.0ft.	1.0ft.	16.0	16.0	0.0	12	14	194 Btuh
2	2 NFRC	0.25, 0.36	No	No	S	7.5ft.	1.5ft.	13.3	13.3	0.0	12	14	161 Btuh
3	2 NFRC	0.25, 0.36	No	No	S	7.5ft.	0.5ft.	5.0	5.0	0.0	12	14	60 Btuh
4	2 NFRC	0.25, 0.36	No	No	S	1.5ft.	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.	20.0	1.0	19.0	12	31	600 Btuh
6	2 NFRC	0.25, 0.36	No	No	E	1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176 Btuh
7	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544 Btuh
8	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	0.5ft.	25.0	0.0	25.0	12	12	302 Btuh
9	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	0.5ft.	45.0	0.0	45.0	12	12	544 Btuh
10	2 NFRC	0.25, 0.36	No	No	N	1.5ft.	0.5ft.	15.0	0.0	15.0	12	12	181 Btuh
11	2 NFRC	0.25, 0.36	No	No	W	5.5ft.	0.5ft.	20.0	12.2	7.8	12	31	389 Btuh
12	2 NFRC	0.25, 0.36	No	No	E	7.5ft.	0.5ft.	20.0	17.2	2.8	12	31	295 Btuh
13	2 NFRC	0.25, 0.36	No	No	N	9.5ft.	0.5ft.	72.0	0.0	72.0	12	12	871 Btuh
14	2 NFRC	0.25, 0.36	No	No	W	1.5ft.	0.5ft.	15.0	2.2	12.8	12	31	422 Btuh
Excursion													81 Btuh
Window Total								353 (sqft)					5259 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load			
1	Frame - Wood - Ext	0.09	13.0/0.0	90.7	2.3	205 Btuh							
2	Frame - Wood - Ext	0.09	13.0/0.0	41.7	2.3	94 Btuh							
3	Frame - Wood - Ext	0.09	13.0/0.0	23.3	2.3	53 Btuh							
4	Frame - Wood - Ext	0.09	13.0/0.0	80.0	2.3	181 Btuh							
5	Frame - Wood - Ext	0.09	13.0/0.0	293.5	2.3	664 Btuh							
6	Frame - Wood - Ext	0.09	13.0/0.0	207.5	2.3	470 Btuh							
7	Frame - Wood - Ext	0.09	13.0/0.0	34.0	2.3	77 Btuh							
8	Frame - Wood - Ext	0.09	13.0/0.0	60.0	2.3	136 Btuh							
9	Frame - Wood - Ext	0.09	13.0/0.0	96.3	2.3	218 Btuh							
10	Frame - Wood - Ext	0.09	13.0/0.0	50.0	2.3	113 Btuh							
11	Frame - Wood - Ext	0.09	13.0/0.0	265.5	2.3	601 Btuh							
12	Frame - Wood - Adj	0.09	13.0/0.0	93.0	1.7	157 Btuh							
13	Frame - Wood - Adj	0.09	13.0/0.0	178.0	1.7	300 Btuh							
Wall Total								1513 (sqft)		3269 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 AtticLight/Shingle/RB	0.025	38.0/0.0	1860.0	0.86	1605 Btuh							
Ceiling Total								1860 (sqft)		1605 Btuh			
Floors	Type	R-Value		Size		HTM	Load						
1	Slab On Grade	0.0	1771 (ft-perimeter)	0.0	0 Btuh								
Floor Total								1771.0 (sqft)		0 Btuh			
Envelope Subtotal:											10686 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 24 Cannon Creek Place

Lake City, FL 32024

6/3/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 15939	Wall Ratio 1	CFM= 35.9	Load 748 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	1200	Load 2120 Btuh
					Sensible Envelope Load:	13553 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.323)	4383 Btuh
					Sensible Load All Zones	17937 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 24 Cannon Creek Place

Lake City, FL 32024

6/3/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13553 Btuh
	Sensible Duct Load	4383 Btuh
	Total Sensible Zone Loads	17937 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17937 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1241 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1261 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3302 Btuh
	TOTAL GAIN	21238 Btuh

EQUIPMENT

1. Central Unit	#	22965 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