

Residential System Sizing Calculation

Summary

Project Title:
Lot 29 Turkey Creek

Lake City, FL 32055

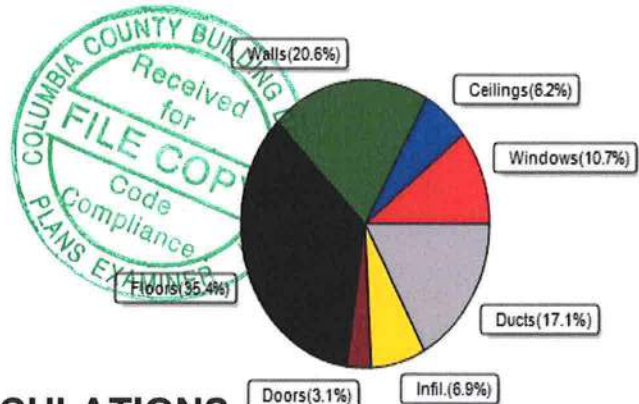
9/15/2020

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	23544	Btuh	Total cooling load calculation	17595	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	23544	Sensible (SHR = 0.70)	85.3	12317
Heat Pump + Auxiliary(0.0kW)	100.0	23544	Latent	167.4	5279
			Total (Electric Heat Pump)	100.0	17595

WINTER CALCULATIONS

Winter Heating Load (for 1375 sqft)

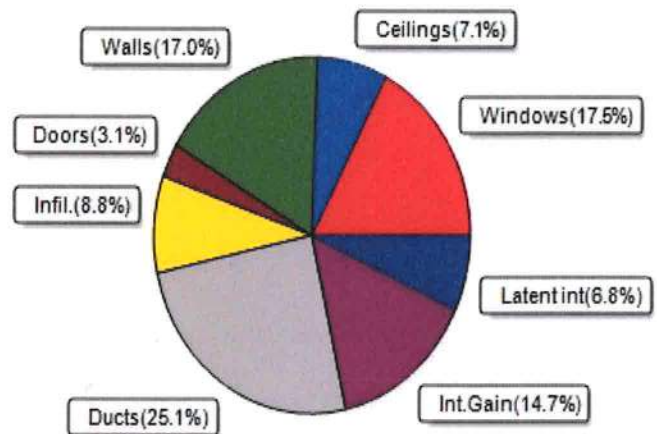
Load component		Load	
Window total	175 sqft	2515	Btuh
Wall total	1366 sqft	4851	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1443 sqft	1465	Btuh
Floor total	1375 sqft	8323	Btuh
Infiltration	37 cfm	1630	Btuh
Duct loss		4024	Btuh
Subtotal		23544	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		23544	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1375 sqft)

Load component		Load	
Window total	175 sqft	3071	Btuh
Wall total	1366 sqft	2990	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1443 sqft	1245	Btuh
Floor total		0	Btuh
Infiltration	28 cfm	581	Btuh
Internal gain		2580	Btuh
Duct gain		3425	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		14443	Btuh
Latent gain(ducts)		989	Btuh
Latent gain(infiltration)		963	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3152	Btuh
TOTAL HEAT GAIN		17595	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

9/15/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32055

Project Title:
Lot 29 Turkey Creek
Building Type: User

9/15/2020

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	15.0		14.4	216 Btuh
2	2, NFRC 0.25	TIM	0.36	S	6.7		14.4	96 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	12.0		14.4	173 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	6.0		14.4	86 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	4.0		14.4	58 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
8	2, NFRC 0.25	TIM	0.36	N	20.0		14.4	288 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 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	6.0		14.4	86 Btuh
Window Total					174.7(sqft)			2515 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	57		3.55	202 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	114		3.55	405 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	33		3.55	118 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	225		3.55	799 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	164		3.55	582 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	51		3.55	181 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.55	291 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	51		3.55	181 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	198		3.55	703 Btuh
Wall Total					1366(sqft)			4851 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	1443		1.0	1465 Btuh
Ceiling Total					1443(sqft)			1465Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	176.3 ft(perim.)		47.2	8323 Btuh
Floor Total					1375 sqft			8323 Btuh
Envelope Subtotal:								17890 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Lot 29 Turkey Creek
Building Type: User

9/15/2020

Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 12375	Wall Ratio 1.00	CFM= 37.2	1630 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.206)					4024 Btuh
All Zones	Sensible Subtotal All Zones					23544 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	23544 Btuh 0 Btuh 23544 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	23544 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 29 Turkey Creek

Lake City, FL 32055

9/15/2020

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.	15.0	15.0	0.0	12	14	181	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		7.0ft.	1.0ft.	6.7	6.7	0.0	12	14	81	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	12.0	0.7	11.3	12	31	357	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	4.0	0.0	4.0	12	12	48	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		6.7ft.	1.0ft.	20.0	0.0	20.0	12	12	242	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		6.7ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
10	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
Window Total									175 (sqft)					3071 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext	0.09		13.0/0.0		57.0		2.3		129 Btuh					
2	Frame - Wood - Ext	0.09		13.0/0.0		114.0		2.3		258 Btuh					
3	Frame - Wood - Ext	0.09		13.0/0.0		96.0		2.3		217 Btuh					
4	Frame - Wood - Ext	0.09		13.0/0.0		36.0		2.3		81 Btuh					
5	Frame - Wood - Ext	0.09		13.0/0.0		33.3		2.3		75 Btuh					
6	Frame - Wood - Adj	0.09		13.0/0.0		178.0		1.7		300 Btuh					
7	Frame - Wood - Ext	0.09		13.0/0.0		225.0		2.3		509 Btuh					
8	Frame - Wood - Ext	0.09		13.0/0.0		164.0		2.3		371 Btuh					
9	Frame - Wood - Ext	0.09		13.0/0.0		51.0		2.3		115 Btuh					
10	Frame - Wood - Ext	0.09		13.0/0.0		82.0		2.3		186 Btuh					
11	Frame - Wood - Ext	0.09		13.0/0.0		51.0		2.3		115 Btuh					
12	Frame - Wood - Ext	0.09		13.0/0.0		81.0		2.3		183 Btuh					
13	Frame - Wood - Ext	0.09		13.0/0.0		198.0		2.3		448 Btuh					
Wall Total						1366 (sqft)					2990 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 Attic/Light/Shingle/RB	0.025		38.0/0.0		1443.0		0.86		1245 Btuh					
Ceiling Total						1443 (sqft)					1245 Btuh				
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade	0.0		1375 (ft-perimeter)		0.0		0 Btuh							
Floor Total						1375.0 (sqft)					0 Btuh				
Envelope Subtotal:											7858 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 29 Turkey Creek

Lake City, FL 32055

9/15/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 12375	Wall Ratio 1	CFM= 27.9	Load 581 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	11018 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.311)					3425 Btuh
					Sensible Load All Zones	14443 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 29 Turkey Creek

Lake City, FL 32055

9/15/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11018 Btuh
	Sensible Duct Load	3425 Btuh
	Total Sensible Zone Loads	14443 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14443 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	963 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	989 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3152 Btuh
	TOTAL GAIN	17595 Btuh

EQUIPMENT

1. Central Unit	#	17595 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