

Residential System Sizing Calculation

Summary

Project Title:
Lot 13 Turkey Creek

Lake City, FL 32055

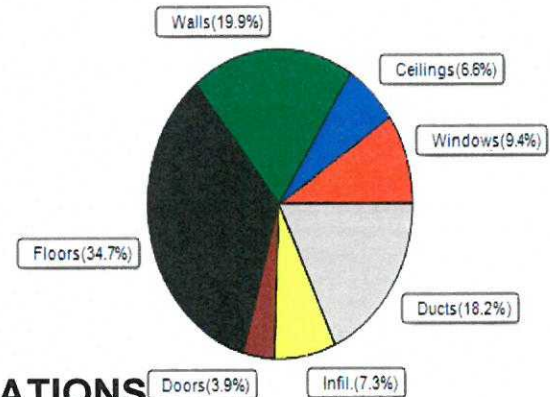
7/1/2020

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	29398 Btuh	Total cooling load calculation	20618 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 29398	Sensible (SHR = 0.70)	85.8 14433
Heat Pump + Auxiliary(0.0kW)	100.0 29398	Latent	162.5 6185
		Total (Electric Heat Pump)	100.0 20618

WINTER CALCULATIONS

Winter Heating Load (for 1810 sqft)

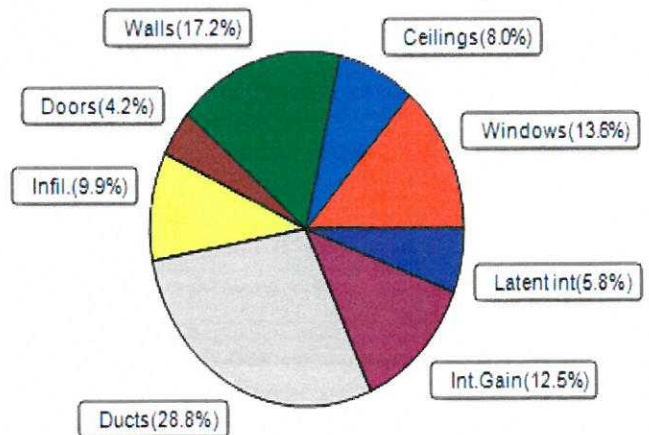
Load component		Load	
Window total	193 sqft	2774 Btuh	
Wall total	1650 sqft	5857 Btuh	
Door total	63 sqft	1153 Btuh	
Ceiling total	1900 sqft	1929 Btuh	
Floor total	1810 sqft	10195 Btuh	
Infiltration	49 cfm	2145 Btuh	
Duct loss		5344 Btuh	
Subtotal		29398 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		29398 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1810 sqft)

Load component		Load	
Window total	193 sqft	2799 Btuh	
Wall total	1650 sqft	3555 Btuh	
Door total	63 sqft	865 Btuh	
Ceiling total	1900 sqft	1640 Btuh	
Floor total		0 Btuh	
Infiltration	37 cfm	764 Btuh	
Internal gain		2580 Btuh	
Duct gain		4610 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		16812 Btuh	
Latent gain(ducts)		1338 Btuh	
Latent gain(infiltration)		1268 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1200 Btuh	
Total latent gain		3806 Btuh	
TOTAL HEAT GAIN		20618 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

6/29/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32055

Project Title:
Lot 13 Turkey Creek
Building Type: User

7/1/2020

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	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	2.0		14.4	29 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	E	15.0		14.4	216 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	10.0		14.4	144 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	8.0		14.4	115 Btuh
Window Total					192.7(sqft)			2774 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	113		3.55	402 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	340		3.55	1207 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	72		3.55	256 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	135		3.55	480 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	75		3.55	266 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	178		3.55	632 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	231		3.55	820 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	132		3.55	469 Btuh
Wall Total					1650(sqft)			5857 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	1900		1.0	1929 Btuh
Ceiling Total					1900(sqft)			1929Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	216.0 ft(perim.)		47.2	10195 Btuh
Floor Total					1810 sqft			10195 Btuh
Envelope Subtotal:								21908 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.18	16290	1.00	49.0		2145 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.222)							5344 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Lot 13 Turkey Creek
Building Type: User

7/1/2020

All Zones	Sensible Subtotal All Zones	29398 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	29398 Btuh 0 Btuh 29398 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	29398 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 13 Turkey Creek

Lake City, FL 32055

7/1/2020

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		7.5ft.	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.	2.0	0.5	1.5	12	31	53	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		9.5ft.	0.3ft.	42.7	0.0	42.7	12	12	516	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	0.3ft.	20.0	0.0	20.0	12	12	242	Btuh	
7	2 NFRC	0.25, 0.36	No	No	E		4.5ft.	1.0ft.	15.0	8.2	6.8	12	31	310	Btuh	
8	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	4.0ft.	20.0	0.0	20.0	12	12	242	Btuh	
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	10.0	0.5	9.5	12	31	300	Btuh	
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	8.0	1.0	7.0	12	31	229	Btuh	
	Window Total									193 (sqft)					2799 Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	113.3		2.3		257 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	340.0		2.3		770 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	72.0		2.3		163 Btuh			
6	Frame - Wood - Ext						0.09	13.0/0.0	135.3		2.3		306 Btuh			
7	Frame - Wood - Ext						0.09	13.0/0.0	75.0		2.3		170 Btuh			
8	Frame - Wood - Ext						0.09	13.0/0.0	178.0		2.3		403 Btuh			
9	Frame - Wood - Ext						0.09	13.0/0.0	231.0		2.3		523 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	132.0		1.7		223 Btuh			
	Wall Total									1650 (sqft)					3555 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	1900.0		0.86		1640 Btuh			
	Ceiling Total									1900 (sqft)					1640 Btuh	
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		1810 (ft-perimeter)		0.0		0 Btuh			
	Floor Total									1810.0 (sqft)					0 Btuh	
	Envelope Subtotal:													8858 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 13 Turkey Creek

Lake City, FL 32055

7/1/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 16290	Wall Ratio 1	CFM= 36.7	Load 764 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	12202 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.378)					4610 Btuh
					Sensible Load All Zones	16812 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 13 Turkey Creek

Lake City, FL 32055

7/1/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12202 Btuh
	Sensible Duct Load	4610 Btuh
	Total Sensible Zone Loads	16812 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16812 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1268 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1338 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3806 Btuh
	TOTAL GAIN	20618 Btuh

EQUIPMENT

1. Central Unit	#	20618 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