

Residential System Sizing Calculation

Summary

N/A

Project Title:

Lot 18 Turkey Creek - Model 1523

Lake City, FL 32055

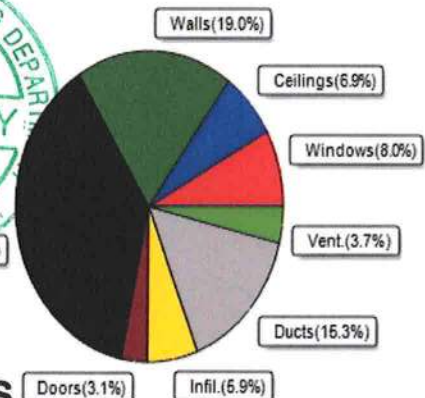
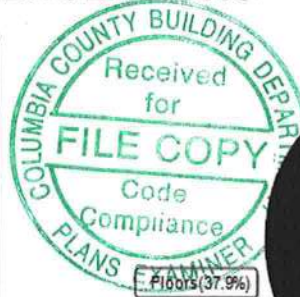
2/3/2021

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	23391 Btuh	Total cooling load calculation	15814 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.8 23571	Sensible (SHR = 0.70)	86.2 10976
Heat Pump + Auxiliary(0.0kW)	100.8 23571	Latent	152.4 4704
		Total (Electric Heat Pump)	99.2 15680

WINTER CALCULATIONS

Winter Heating Load (for 1523 sqft)

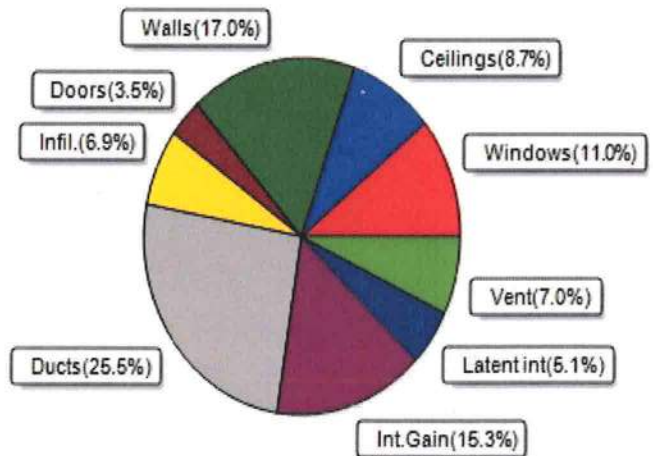
Load component		Load	
Window total	130 sqft	1877 Btuh	
Wall total	1262 sqft	4433 Btuh	
Door total	40 sqft	736 Btuh	
Ceiling total	1599 sqft	1623 Btuh	
Floor total	1523 sqft	8874 Btuh	
Infiltration	32 cfm	1391 Btuh	
Duct loss		3581 Btuh	
Subtotal		22515 Btuh	
Ventilation	20 cfm	876 Btuh	
TOTAL HEAT LOSS		23391 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1523 sqft)

Load component		Load	
Window total	130 sqft	1737 Btuh	
Wall total	1262 sqft	2687 Btuh	
Door total	40 sqft	552 Btuh	
Ceiling total	1599 sqft	1380 Btuh	
Floor total		0 Btuh	
Infiltration	20 cfm	412 Btuh	
Internal gain		2420 Btuh	
Duct gain		3124 Btuh	
Sens. Ventilation	20 cfm	416 Btuh	
Blower Load		0 Btuh	
Total sensible gain		12728 Btuh	
Latent gain(ducts)		912 Btuh	
Latent gain(infiltration)		684 Btuh	
Latent gain(ventilation)		690 Btuh	
Latent gain(internal/occupants/other)		800 Btuh	
Total latent gain		3087 Btuh	
TOTAL HEAT GAIN		15814 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

2/3/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A

Lake City, FL 32055

Project Title:
Lot 18 Turkey Creek - Model 1523
Building Type: User

2/3/2021

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	38.4		14.4	553 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	10.2		14.4	147 Btuh
3	2, NFRC 0.25	Vinyl	0.36	N	48.0		14.4	691 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	19.2		14.4	276 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	12.8		14.4	184 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	1.7		14.4	25 Btuh
	Window Total					130.3(sqft)		1877 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	194		3.55	687 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	245		3.55	869 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	273		3.55	969 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	262		3.55	931 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	184		3.55	653 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	105		3.09	323 Btuh
	Wall Total					1262(sqft)		4433 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
2	Wood - 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	1599		1.0	1623 Btuh	
	Ceiling Total					1599(sqft)		1623Btuh
Floors	Type	Ueff.	R-Value	Size	X	HTM=	Load	
1	Slab On Grade	(1.180)	0.0	188.0 ft(perim.)		47.2	8874 Btuh	
	Floor Total					1523 sqft		8874 Btuh
	Envelope Subtotal:							17543 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
	Natural(Adjusted for ventilation)		0.16	13707	1.00	31.8	1391 Btuh	
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.189)						3581 Btuh	
All Zones	Sensible Subtotal All Zones							22515 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A

Lake City, FL 32055

Project Title:
Lot 18 Turkey Creek - Model 1523
Building Type: User

2/3/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	22515 Btuh 876 Btuh 23391 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	23571 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 18 Turkey Creek - Model 1523

Lake City, FL 32055

2/3/2021

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.	38.4	38.4	0.0	12	14	465	Btuh
2	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	10.2	0.8	9.5	12	31	302	Btuh
3	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	48.0	0.0	48.0	12	12	581	Btuh
4	2 NFRC	0.25, 0.36	No	No	N		7.5ft.	1.0ft.	19.2	0.0	19.2	12	12	232	Btuh
5	2 NFRC	0.25, 0.36	B-L	No	N		7.5ft.	1.0ft.	12.8	0.0	12.8	9	9	119	Btuh
6	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	1.7	0.8	0.9	12	31	38	Btuh
Window Total									130 (sqft)					1737 Btuh	
Walls	Type	U-Value			R-Value			Area(sqft)			HTM		Load		
					Cav/Sheath										
1	Frame - Wood - Ext	0.09			13.0/0.0			193.6			2.3		438 Btuh		
2	Frame - Wood - Ext	0.09			13.0/0.0			244.8			2.3		554 Btuh		
3	Frame - Wood - Ext	0.09			13.0/0.0			273.0			2.3		618 Btuh		
4	Frame - Wood - Ext	0.09			13.0/0.0			262.3			2.3		594 Btuh		
5	Frame - Wood - Adj	0.09			13.0/0.0			184.0			1.7		310 Btuh		
6	Frame - Wood - Ext	0.08			19.0/0.0			104.5			1.7		173 Btuh		
Wall Total									1262 (sqft)					2687 Btuh	
Doors	Type	U-Value			R-Value			Area (sqft)			HTM		Load		
1	Insulated - Garage							20.0			13.8		276 Btuh		
2	Wood - 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		1599.0		0.86		1380 Btuh		
Ceiling Total									1599 (sqft)					1380 Btuh	
Floors	Type			R-Value			Size			HTM		Load			
1	Slab On Grade			0.0			1523 (ft-perimeter)			0.0		0 Btuh			
Floor Total									1523.0 (sqft)					0 Btuh	
Envelope Subtotal:														6355 Btuh	
Infiltration	Type	Average ACH			Volume(cuft)			Wall Ratio		CFM=		Load			
		Natural(Adjusted for ventilation)			0.09			13707		1		19.8		412 Btuh	
Internal gain	Occupants			Btuh/occupant			Appliance		Load						
	4			X 230			+		1500		2420 Btuh				
Sensible Envelope Load:														9188 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)									(DGM of 0.340)			3124 Btuh		
Sensible Load All Zones														12312 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A

Project Title: Climate: FL_GAINESVILLE_REGIONAL_A
Lot 18 Turkey Creek - Model 1523

Lake City, FL 32055

2/3/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9188 Btuh
	Sensible Duct Load	3124 Btuh
	Total Sensible Zone Loads	12312 Btuh
	Sensible ventilation	416 Btuh
	Blower	0 Btuh
	Total sensible gain	12728 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	684 Btuh
	Latent ventilation gain	690 Btuh
	Latent duct gain	912 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3087 Btuh
	TOTAL GAIN	15814 Btuh

EQUIPMENT

1. Central Unit	#	15680 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

