

Residential System Sizing Calculation

Summary

Project Title:
Lot 12 Turkey Creek

Lake City, FL 32055

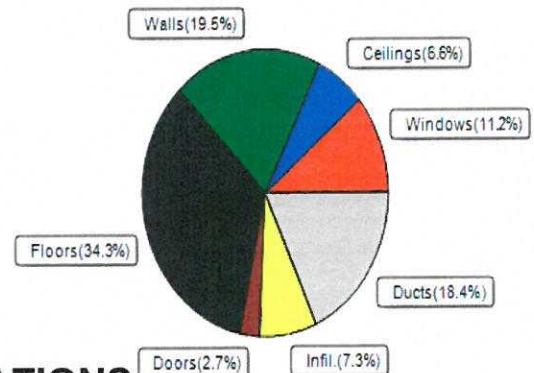
7/1/2020

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	27482 Btuh	Total cooling load calculation	20093 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 27482	Sensible (SHR = 0.70)	85.2 14065
Heat Pump + Auxiliary(0.0kW)	100.0 27482	Latent	167.8 6028
		Total (Electric Heat Pump)	100.0 20093

WINTER CALCULATIONS

Winter Heating Load (for 1690 sqft)

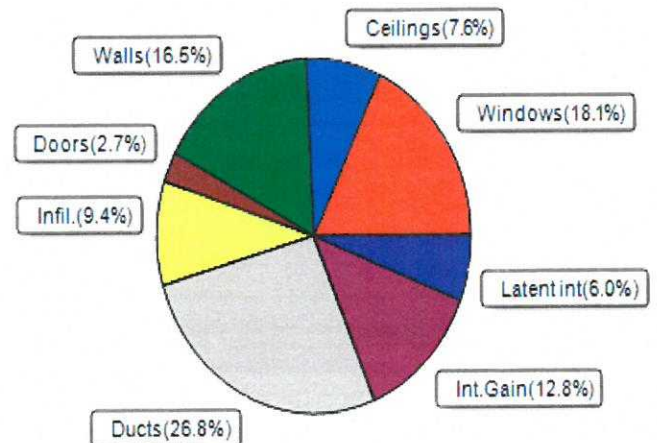
Load component		Load	
Window total	214 sqft	3082	Btuh
Wall total	1513 sqft	5372	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1774 sqft	1801	Btuh
Floor total	1690 sqft	9440	Btuh
Infiltration	46 cfm	2003	Btuh
Duct loss		5049	Btuh
Subtotal		27482	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27482	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1690 sqft)

Load component		Load	
Window total	214 sqft	3630	Btuh
Wall total	1513 sqft	3322	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1774 sqft	1531	Btuh
Floor total		0	Btuh
Infiltration	34 cfm	714	Btuh
Internal gain		2580	Btuh
Duct gain		4173	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16501	Btuh
Latent gain(ducts)		1208	Btuh
Latent gain(infiltration)		1184	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3592	Btuh
TOTAL HEAT GAIN		20093	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 12 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	15.0		14.4	216 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	4.0		14.4	58 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	40.0		14.4	576 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
8	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
Window Total					214.0(sqft)			3082 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	24		3.55	85 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	34		3.55	121 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	111		3.55	394 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	84		3.55	298 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	299		3.55	1062 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	162		3.55	575 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	59		3.55	209 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	186		3.55	660 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	319		3.55	1133 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
Wall Total					1513(sqft)			5372 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	1774		1.0	1801 Btuh
Ceiling Total					1774(sqft)			1801Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	200.0 ft(perim.)		47.2	9440 Btuh
Floor Total					1690 sqft			9440 Btuh
Envelope Subtotal:								20430 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	15210	1.00	45.7		2003 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.225)							5049 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Lot 12 Turkey Creek
Building Type: User

7/1/2020

All Zones	Sensible Subtotal All Zones	27482 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27482 Btuh 0 Btuh 27482 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27482 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 12 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.	1.0ft.	15.0	15.0	0.0	12	14	181 Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		1.0ft.	4.0ft.	30.0	10.1	19.9	12	14	402 Btuh	
3	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	10.0f	4.0	0.0	4.0	12	31	124 Btuh	
4	2 NFRC	0.25, 0.36	No	No	N		12.5f	1.0ft.	30.0	0.0	30.0	12	12	363 Btuh	
5	2 NFRC	0.25, 0.36	No	No	E		6.0ft.	1.0ft.	40.0	23.9	16.1	12	31	788 Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363 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	E		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450 Btuh	
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	20.0	1.2	18.8	12	31	596 Btuh	
	Window Total									214 (sqft)					3630 Btuh
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath								
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	24.0			2.3		54 Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0	34.0			2.3		77 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	111.0			2.3		251 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	84.0			2.3		190 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	299.0			2.3		677 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	162.0			2.3		367 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	59.0			2.3		134 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0	186.0			2.3		421 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0	319.0			2.3		722 Btuh	
11	Frame - Wood - Adj						0.09	13.0/0.0	178.0			1.7		300 Btuh	
	Wall Total									1513 (sqft)					3322 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	1774.0			0.86		1531 Btuh	
	Ceiling Total									1774 (sqft)			1531 Btuh		
Floors	Type					R-Value			Size			HTM		Load	
1	Slab On Grade						0.0			1690 (ft-perimeter)			0.0		0 Btuh
	Floor Total									1690.0 (sqft)					0 Btuh
	Envelope Subtotal:													9034 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 12 Turkey Creek

Lake City, FL 32055

7/1/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 15210	Wall Ratio 1	CFM= 34.3	Load 714 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	12328 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.339)					4173 Btuh
					Sensible Load All Zones	16501 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 12 Turkey Creek

Lake City, FL 32055

7/1/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12328 Btuh
	Sensible Duct Load	4173 Btuh
	Total Sensible Zone Loads	16501 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16501 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1184 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1208 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3592 Btuh
	TOTAL GAIN	20093 Btuh

EQUIPMENT

1. Central Unit	#	20093 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