

Residential System Sizing Calculation

Summary

Project Title:
Crest Glen Model - Lot 11 Hickory Cove

Lake City, FL

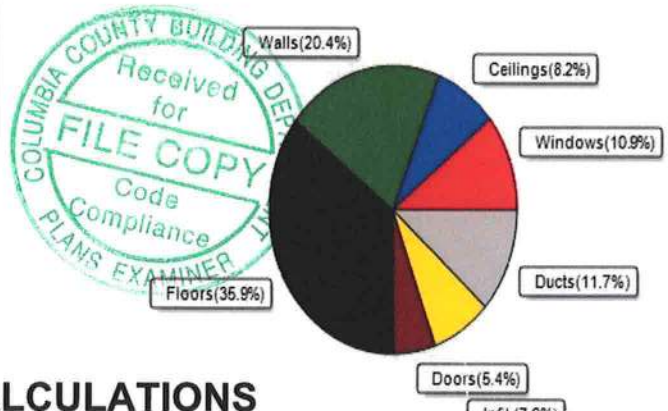
9/11/2020

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	23811	Btuh	Total cooling load calculation	17681	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	126.0	30000	Sensible (SHR = 0.85)	169.5	25500
Heat Pump + Auxiliary(0.0kW)	126.0	30000	Latent	170.9	4500
			Total (Electric Heat Pump)	169.7	30000

WINTER CALCULATIONS

Winter Heating Load (for 1524 sqft)

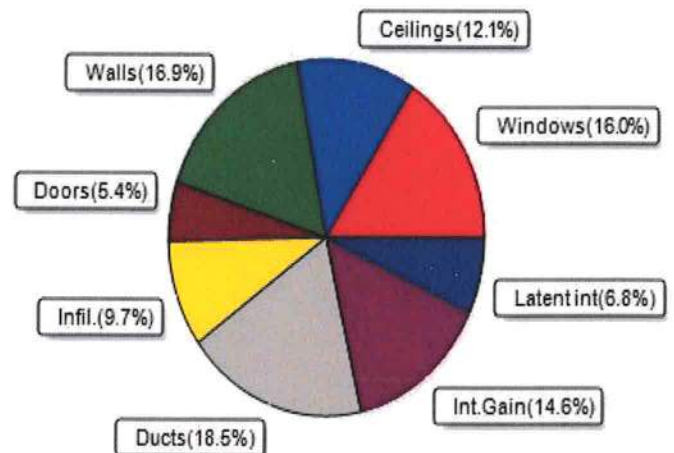
Load component		Load	
Window total	197 sqft	2600	Btuh
Wall total	1403 sqft	4857	Btuh
Door total	80 sqft	1280	Btuh
Ceiling total	1524 sqft	1941	Btuh
Floor total	1524 sqft	8543	Btuh
Infiltration	41 cfm	1806	Btuh
Duct loss		2783	Btuh
Subtotal		23811	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		23811	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1524 sqft)

Load component		Load	
Window total	197 sqft	2827	Btuh
Wall total	1403 sqft	2989	Btuh
Door total	80 sqft	960	Btuh
Ceiling total	1524 sqft	2136	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	643	Btuh
Internal gain		2580	Btuh
Duct gain		2913	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		15048	Btuh
Latent gain(ducts)		366	Btuh
Latent gain(infiltration)		1068	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		2634	Btuh
TOTAL HEAT GAIN		17681	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:

Crest Glen Model - Lot 11 Hickory Cove

Lake City, FL

9/11/2020

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	0.22, 0.33	No	No	N		1.5ft	1.3ft	90.0	0.0	90.0	11	11	981	Btuh
2	2 NFRC	0.22, 0.33	No	No	N		1.5ft	1.3ft	36.0	0.0	36.0	11	11	392	Btuh
3	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	20.0	0.0	20.0	11	27	550	Btuh
4	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	2.0	0.0	2.0	11	27	55	Btuh
5	2 NFRC	0.22, 0.33	No	No	S		7.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh
6	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh
7	2 NFRC	0.22, 0.33	No	No	W		1.5ft	1.3ft	4.0	0.0	4.0	11	27	110	Btuh
8	2 NFRC	0.22, 0.33	No	No	W		1.5ft	1.3ft	15.0	0.0	15.0	11	27	412	Btuh
Window Total									197 (sqft)					2827 Btuh	
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.6	102.0			2.2		224 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.6	41.0			2.2		90 Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.6	243.0			2.2		534 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.6	118.0			2.2		259 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.6	30.0			2.2		66 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.6	94.0			2.2		207 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.6	30.0			2.2		66 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.6	112.0			2.2		246 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.6	84.0			2.2		185 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.6	120.0			2.2		264 Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.6	242.0			2.2		532 Btuh	
12	Frame - Wood - Adj						0.09	13.0/0.0	187.0			1.7		315 Btuh	
Wall Total									1403 (sqft)					2989 Btuh	
Doors	Type					U-Value	R-Value	Area (sqft)			HTM		Load		
1	Insulated - Exterior								40.0			12.0		480 Btuh	
2	Insulated - Exterior								20.0			12.0		240 Btuh	
3	Insulated - Garage								20.0			12.0		240 Btuh	
Door Total									80 (sqft)					960 Btuh	
Ceilings	Type/Color/Surface					U-Value	R-Value	Area(sqft)			HTM		Load		
1	Vented Attic/Light/Shingle						0.032	30.0/0.0	1524.0			1.40		2136 Btuh	
Ceiling Total									1524 (sqft)					2136 Btuh	
Floors	Type					U-Value	R-Value	Size			HTM		Load		
1	Slab On Grade							0.0	1524 (ft-perimeter)			0.0		0 Btuh	
Floor Total									1524.0 (sqft)					0 Btuh	
Envelope Subtotal:														8911 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Crest Glen Model - Lot 11 Hickory Cove

Lake City, FL

9/11/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 13716	Wall Ratio 1	CFM= 30.9	Load 643 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
	Sensible Envelope Load:					12134 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.240)	2913 Btuh
	Sensible Load All Zones					15048 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Crest Glen Model - Lot 11 Hickory Cove

Lake City, FL

9/11/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12134 Btuh
	Sensible Duct Load	2913 Btuh
	Total Sensible Zone Loads	15048 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15048 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1068 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	366 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2634 Btuh
	TOTAL GAIN	17681 Btuh

EQUIPMENT

1. Central Unit	#	30000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:

Crest Glen Model - Lot 11 Hickory Cove

Building Type: User

Lake City, FL

9/11/2020

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 0.22	Vinyl	0.33	N	90.0		13.2	1188 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	36.0		13.2	475 Btuh
3	2, NFRC 0.22	Vinyl	0.33	E	20.0		13.2	264 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	2.0		13.2	26 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
6	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
7	2, NFRC 0.22	Vinyl	0.33	W	4.0		13.2	53 Btuh
8	2, NFRC 0.22	Vinyl	0.33	W	15.0		13.2	198 Btuh
Window Total					197.0(sqft)			2600 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	102		3.45	352 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	41		3.45	141 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	243		3.45	838 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	118		3.45	407 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	30		3.45	103 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	94		3.45	324 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	30		3.45	103 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	112		3.45	386 Btuh
9	Frame - Wood	- Ext	(0.086)	13.0/0.6	84		3.45	290 Btuh
10	Frame - Wood	- Ext	(0.086)	13.0/0.6	120		3.45	414 Btuh
11	Frame - Wood	- Ext	(0.086)	13.0/0.6	242		3.45	835 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	187		3.55	664 Btuh
Wall Total					1403(sqft)			4857 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		40		16.0	640 Btuh
2	Insulated - Exterior,	n	(0.400)		20		16.0	320 Btuh
3	Insulated - Garage,	n	(0.400)		20		16.0	320 Btuh
Door Total					80(sqft)			1280Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1524		1.3	1941 Btuh
Ceiling Total					1524(sqft)			1941Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	181.0 ft(perim.)		47.2	8543 Btuh
Floor Total					1524 sqft			8543 Btuh
Envelope Subtotal:								19222 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	13716	1.00	41.2		1806 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL

Project Title:
Crest Glen Model - Lot 11 Hickory Cove
Building Type: User

9/11/2020

Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.132)	2783 Btuh
All Zones	Sensible Subtotal All Zones	23811 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	23811 Btuh 0 Btuh 23811 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	30000 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