

Residential System Sizing Calculation

Summary

Project Title:
Crest Glen Model - Lot 13 Hickory Cove

Lake City, FL

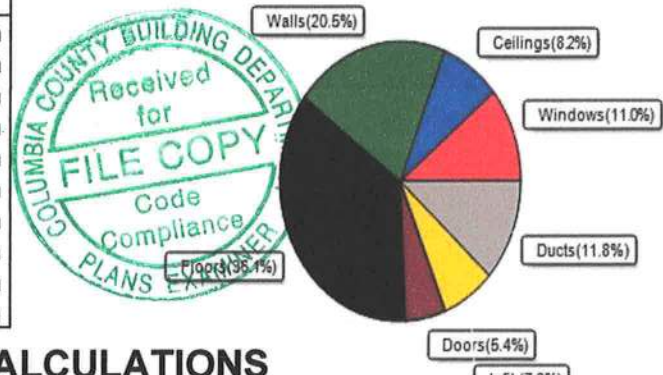
2/23/2021

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	23654	Btuh	Total cooling load calculation	19685	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	126.8	30000	Sensible (SHR = 0.85)	148.8	25500
Heat Pump + Auxiliary(0.0kW)	126.8	30000	Latent	176.6	4500
			Total (Electric Heat Pump)	152.4	30000

WINTER CALCULATIONS

Winter Heating Load (for 1524 sqft)

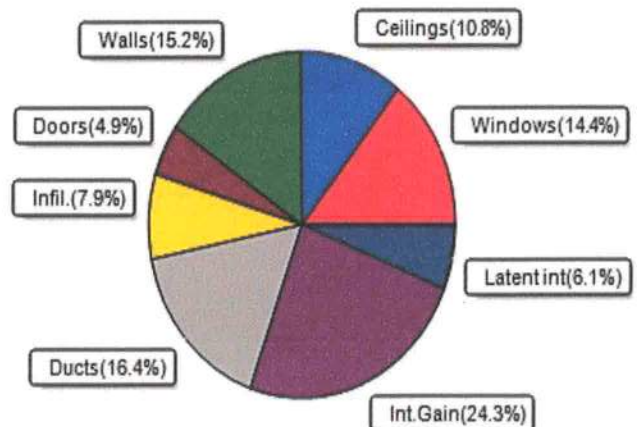
Load component		Load	
Window total	197 sqft	2600	Btuh
Wall total	1403 sqft	4857	Btuh
Door total	80 sqft	1280	Btuh
Ceiling total	1524 sqft	1941	Btuh
Floor total	1524 sqft	8543	Btuh
Infiltration	38 cfm	1645	Btuh
Duct loss		2787	Btuh
Subtotal		23654	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		23654	Btuh



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	28 cfm	586	Btuh
Internal gain		4780	Btuh
Duct gain		2860	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		17137	Btuh
Latent gain(ducts)		376	Btuh
Latent gain(infiltration)		972	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		2548	Btuh
TOTAL HEAT GAIN		19685	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

[Signature]
3-2-21

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:

Crest Glen Model - Lot 13 Hickory Cove

Lake City, FL

2/23/2021

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	0.22, 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			
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	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	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 13 Hickory Cove

Lake City, FL

2/23/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 13716	Wall Ratio 1	CFM= 28.2	Load 586 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	3400	Load 4780 Btuh
	Sensible Envelope Load:					14277 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.200)					2860 Btuh
	Sensible Load All Zones					17137 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Crest Glen Model - Lot 13 Hickory Cove

Lake City, FL

2/23/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14277 Btuh
	Sensible Duct Load	2860 Btuh
	Total Sensible Zone Loads	17137 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17137 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	972 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	376 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2548 Btuh
	TOTAL GAIN	19685 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 13 Hickory Cove

Building Type: User

Lake City, FL

2/23/2021

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 0.22	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		0.16	13716	1.00	37.6		1645 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL

Project Title:
Crest Glen Model - Lot 13 Hickory Cove
Building Type: User

2/23/2021

Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.134)	2787 Btuh
All Zones	Sensible Subtotal All Zones	23654 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	23654 Btuh 0 Btuh 23654 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