

Residential System Sizing Calculation

Summary

Project Title:
Lot 11 Fairway View Unit III

Lake City, FL 32055

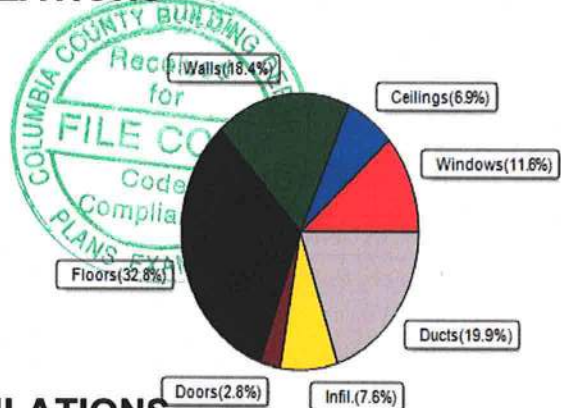
8/3/2020

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	26067	Btuh	Total cooling load calculation	19941	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	26067	Sensible (SHR = 0.70)	85.0	13921
Heat Pump + Auxiliary(0.0kW)	100.0	26067	Latent	167.3	5966
			Total (Electric Heat Pump)	99.7	19888

WINTER CALCULATIONS

Winter Heating Load (for 1678 sqft)

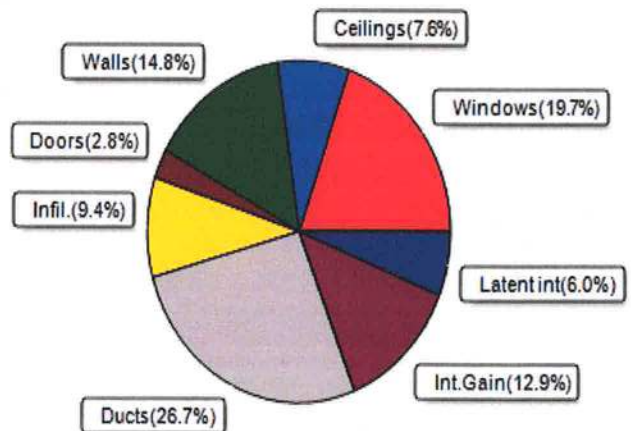
Load component		Load	
Window total	210 sqft	3024	Btuh
Wall total	1352 sqft	4800	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1762 sqft	1789	Btuh
Floor total	1678 sqft	8543	Btuh
Infiltration	45 cfm	1989	Btuh
Duct loss		5186	Btuh
Subtotal		26067	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		26067	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1678 sqft)

Load component		Load	
Window total	210 sqft	3938	Btuh
Wall total	1352 sqft	2948	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1762 sqft	1521	Btuh
Floor total		0	Btuh
Infiltration	34 cfm	708	Btuh
Internal gain		2580	Btuh
Duct gain		4129	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16375	Btuh
Latent gain(ducts)		1190	Btuh
Latent gain(infiltration)		1176	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3566	Btuh
TOTAL HEAT GAIN		19941	Btuh



EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

8/3/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
 Lot 11 Fairway View Unit III
 Lake City, FL 32055 Building Type: User

8/3/2020

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	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
3	2, NFRC 0.25	Metal	0.36	N	60.0		14.4	864 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	45.0		14.4	648 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
	Window Total					210.0(sqft)		3024 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	83		3.55	295 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	51		3.55	181 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.55	85 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	195		3.55	692 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	405		3.55	1438 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	174		3.55	618 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	330 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	255		3.55	905 Btuh
	Wall Total					1352(sqft)		4800 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - 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	1762		1.0	1789 Btuh
	Ceiling Total					1762(sqft)		1789Btuh
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					1678 sqft		8543 Btuh
	Envelope Subtotal:							18892 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	15102	1.00	45.4		1989 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.248)		5186 Btuh
All Zones	Sensible Subtotal All Zones							26067 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Lot 11 Fairway View Unit III
Building Type: User

8/3/2020

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	26067 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	26067 Btuh

EQUIPMENT

1. Electric Heat Pump	#	26067 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 11 Fairway View Unit III

Lake City, FL 32055

8/3/2020

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		10.5f	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
3	2 NFRC	0.25, 0.36	No	No	N		9.5ft.	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	45.0	2.2	42.8	12	31	1351	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544	Btuh
	Excursion													53	Btuh
	Window Total								210 (sqft)					3938	Btuh
Walls	Type	U-Value					R-Value		Area(sqft)		HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0		83.0		2.3		188	Btuh
2	Frame - Wood - Ext						0.09	13.0/0.0		51.0		2.3		115	Btuh
3	Frame - Wood - Ext						0.09	13.0/0.0		24.0		2.3		54	Btuh
4	Frame - Wood - Adj						0.09	13.0/0.0		195.0		1.7		329	Btuh
5	Frame - Wood - Ext						0.09	13.0/0.0		405.0		2.3		917	Btuh
6	Frame - Wood - Ext						0.09	13.0/0.0		174.0		2.3		394	Btuh
7	Frame - Wood - Ext						0.09	13.0/0.0		72.0		2.3		163	Btuh
8	Frame - Wood - Ext						0.09	13.0/0.0		93.0		2.3		210	Btuh
9	Frame - Wood - Ext						0.09	13.0/0.0		255.0		2.3		577	Btuh
	Wall Total									1352 (sqft)				2948	Btuh
Doors	Type								Area (sqft)		HTM		Load		
1	Insulated - Exterior									20.0		13.8		276	Btuh
2	Insulated - 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		1762.0		0.86		1521	Btuh
	Ceiling Total									1762 (sqft)				1521	Btuh
Floors	Type						R-Value		Size		HTM		Load		
1	Slab On Grade							0.0		1678 (ft-perimeter)		0.0		0	Btuh
	Floor Total									1678.0 (sqft)				0	Btuh
	Envelope Subtotal:													8958 Btuh	
Infiltration	Type	Average ACH					Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural						0.14	15102	1		34.1		708	Btuh	
Internal gain	Occupants					Btuh/occupant		Appliance		Load					
						6	X 230	+	1200		2580	Btuh			
	Sensible Envelope Load:													12246 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.337)		4129 Btuh		
	Sensible Load All Zones													16375 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 11 Fairway View Unit III

Lake City, FL 32055

8/3/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12246 Btuh
	Sensible Duct Load	4129 Btuh
	Total Sensible Zone Loads	16375 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16375 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1176 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1190 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3566 Btuh
	TOTAL GAIN	19941 Btuh

EQUIPMENT

1. Central Unit	#	19888 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