

Residential System Sizing Calculation

Summary

Gator & Lori David
209 SW Poppy Glen
Lake City, FL 32024

Project Title:
1756 Model

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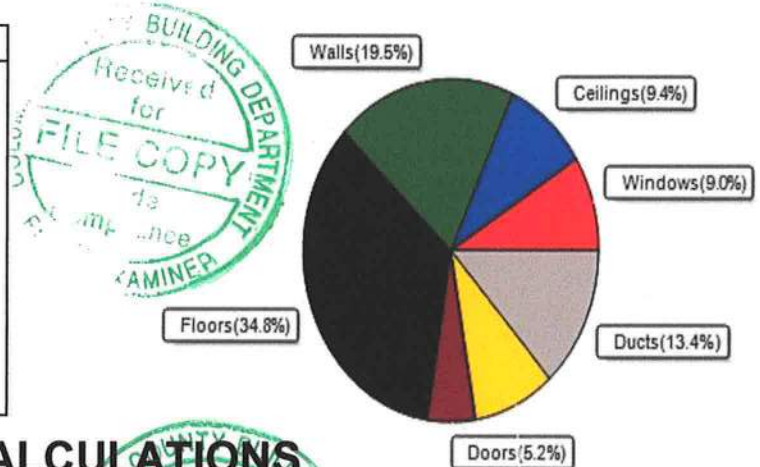
5/1/2020

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	23869 Btuh	Total cooling load calculation	18030 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	150.8 36000	Sensible (SHR = 0.85)	201.8 30600
Heat Pump + Auxiliary(0.0kW)	150.8 36000	Latent	188.3 5400
		Total (Electric Heat Pump)	199.7 36000

WINTER CALCULATIONS

Winter Heating Load (for 1756 sqft)

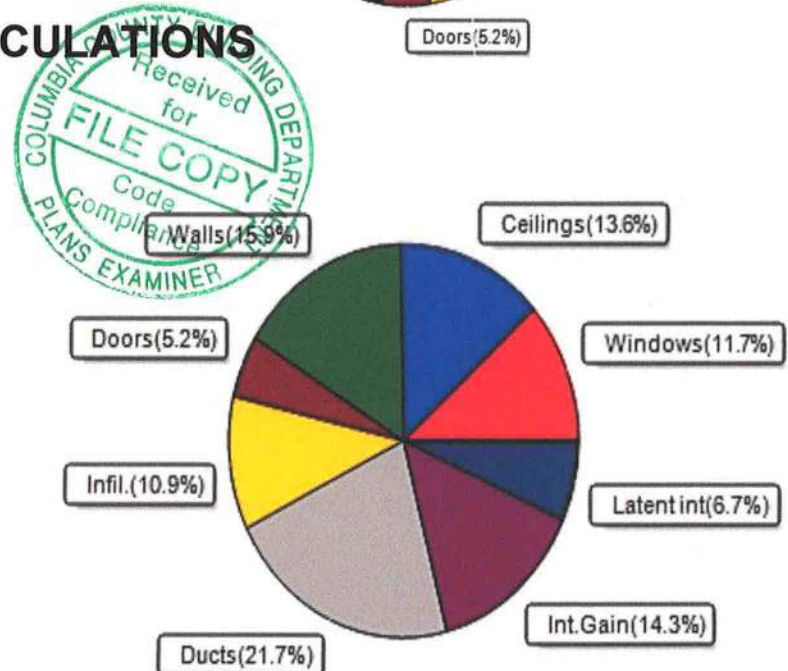
Load component		Load	
Window total	163 sqft	2152 Btuh	
Wall total	1343 sqft	4649 Btuh	
Door total	78 sqft	1244 Btuh	
Ceiling total	1756 sqft	2237 Btuh	
Floor total	1756 sqft	8307 Btuh	
Infiltration	48 cfm	2081 Btuh	
Duct loss		3198 Btuh	
Subtotal		23869 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		23869 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1756 sqft)

Load component		Load	
Window total	163 sqft	2108 Btuh	
Wall total	1343 sqft	2867 Btuh	
Door total	78 sqft	933 Btuh	
Ceiling total	1756 sqft	2461 Btuh	
Floor total		0 Btuh	
Infiltration	36 cfm	741 Btuh	
Internal gain		2580 Btuh	
Duct gain		3472 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		15162 Btuh	
Latent gain(ducts)		438 Btuh	
Latent gain(infiltration)		1230 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1200 Btuh	
Total latent gain		2868 Btuh	
TOTAL HEAT GAIN		18030 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

5-1-20

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Gator & Lori David
209 SW Poppy Glen
Lake City, FL 32024

Project Title:
1756 Model

5/1/2020

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	0.22, 0.33	No	No	No	N	1.5ft	1.3ft	45.0	0.0	45.0	11	11	490	Btuh	
2	2 NFRC	0.22, 0.33	No	No	No	N	1.5ft	1.3ft	20.0	0.0	20.0	11	11	218	Btuh	
3	2 NFRC	0.22, 0.33	No	No	No	N	1.5ft	1.3ft	9.0	0.0	9.0	11	11	98	Btuh	
4	2 NFRC	0.22, 0.33	No	No	No	E	1.5ft	1.3ft	16.0	0.0	16.0	11	27	440	Btuh	
5	2 NFRC	0.22, 0.33	No	No	No	S	1.5ft	1.3ft	54.0	54.0	0.0	11	13	588	Btuh	
6	2 NFRC	0.22, 0.33	No	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	No	W	1.5ft	1.3ft	4.0	0.0	4.0	11	27	110	Btuh	
	Window Total								163 (sqft)					2108 Btuh		
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load	
									Cav/Sheath							
1	Frame - Wood - Ext						0.09		13.0/0.6		396.0		2.2		871 Btuh	
2	Frame - Wood - Ext						0.09		13.0/0.6		266.0		2.2		585 Btuh	
3	Frame - Wood - Ext						0.09		13.0/0.6		235.0		2.2		517 Btuh	
4	Frame - Wood - Ext						0.09		13.0/0.6		278.0		2.2		611 Btuh	
5	Frame - Wood - Adj						0.09		13.0/0.0		168.2		1.7		284 Btuh	
	Wall Total								1343 (sqft)					2867 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								17.8		12.0		213 Btuh			
	Door Total								78 (sqft)					933 Btuh		
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load	
1	Vented Attic/Light/Shingle						0.032		30.0/0.0		1756.0		1.40		2461 Btuh	
	Ceiling Total								1756 (sqft)					2461 Btuh		
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		1756 (ft-perimeter)		0.0		0 Btuh			
	Floor Total								1756.0 (sqft)					0 Btuh		
	Envelope Subtotal:													8369 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.14		15804		1		35.6		741 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							6		X 230		+		1200		2580 Btuh	
	Sensible Envelope Load:													11690 Btuh		
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.297)		3472 Btuh			
	Sensible Load All Zones													15162 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Gator & Lori David
209 SW Poppy Glen
Lake City, FL 32024

Project Title:
1756 Model

Climate:FL_GAINESVILLE_REGIONAL_A

5/1/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11690 Btuh
	Sensible Duct Load	3472 Btuh
	Total Sensible Zone Loads	15162 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15162 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1230 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	438 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2868 Btuh
	TOTAL GAIN	18030 Btuh

EQUIPMENT

1. Central Unit	#	36000 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

Gator & Lori David
209 SW Poppy Glen
Lake City, FL 32024

Project Title:
1756 Model
Building Type: User

5/1/2020

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 0.22	Vinyl	0.33	N	45.0		13.2	594 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	20.0		13.2	264 Btuh
3	2, NFRC 0.22	Vinyl	0.33	N	9.0		13.2	119 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	16.0		13.2	211 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	54.0		13.2	713 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
Window Total					163.0(sqft)			2152 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	396		3.45	1366 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	266		3.45	917 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	235		3.45	810 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	278		3.45	959 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	168		3.55	597 Btuh
Wall Total					1343(sqft)			4649 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)		18		16.0	284 Btuh
Door Total					78(sqft)			1244Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1756		1.3	2237 Btuh
Ceiling Total					1756(sqft)			2237Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	176.0 ft(perim.)		47.2	8307 Btuh
Floor Total					1756 sqft			8307 Btuh
Envelope Subtotal:								18589 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	15804	1.00	47.5		2081 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.155)							3198 Btuh
All Zones	Sensible Subtotal All Zones							23869 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Gator & Lori David
209 SW Poppy Glen
Lake City, FL 32024

Project Title:
1756 Model
Building Type: User

5/1/2020

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	23869 Btuh 0 Btuh 23869 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	36000 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