

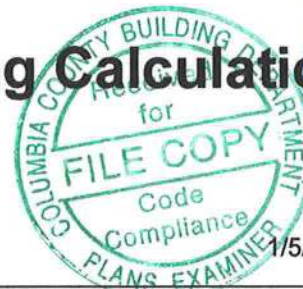
Residential System Sizing Calculation

Summary

Gator & Lori David

Project Title:
1815 Model

Lake City, FL 32024



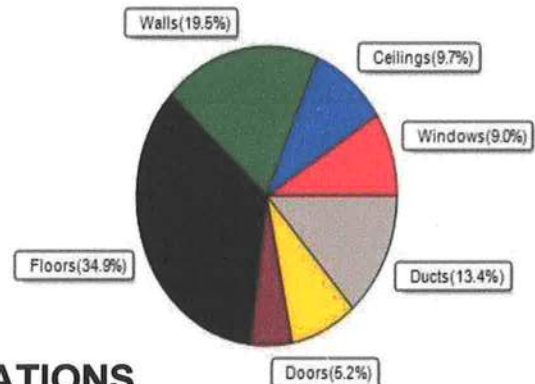
1/5/2022

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	23825 Btuh	Total cooling load calculation	20118 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	151.1 36000	Sensible (SHR = 0.85)	176.7 30600
Heat Pump + Auxiliary(0.0kW)	151.1 36000	Latent	192.7 5400
		Total (Electric Heat Pump)	178.9 36000

WINTER CALCULATIONS

Winter Heating Load (for 1815 sqft)

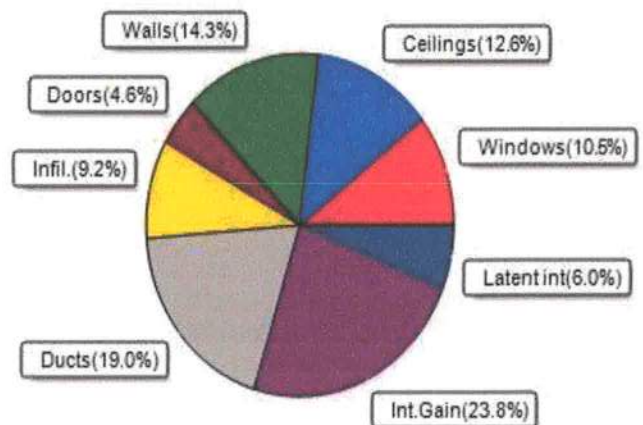
Load component		Load	
Window total	163 sqft	2152 Btuh	
Wall total	1343 sqft	4649 Btuh	
Door total	78 sqft	1244 Btuh	
Ceiling total	1815 sqft	2312 Btuh	
Floor total	1815 sqft	8307 Btuh	
Infiltration	45 cfm	1959 Btuh	
Duct loss		3201 Btuh	
Subtotal		23825 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		23825 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1815 sqft)

Load component		Load	
Window total	163 sqft	2108 Btuh	
Wall total	1343 sqft	2867 Btuh	
Door total	78 sqft	933 Btuh	
Ceiling total	1815 sqft	2543 Btuh	
Floor total		0 Btuh	
Infiltration	34 cfm	698 Btuh	
Internal gain		4780 Btuh	
Duct gain		3386 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		17315 Btuh	
Latent gain(ducts)		444 Btuh	
Latent gain(infiltration)		1158 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1200 Btuh	
Total latent gain		2802 Btuh	
TOTAL HEAT GAIN		20118 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____ 1-4-22

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Gator & Lori David

Project Title:
1815 Model

Lake City, FL 32024

1/5/2022

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	45.0	0.0	45.0	11	11	490 Btuh
2	2 NFRC	0.22, 0.33	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	N		1.5ft	1.3ft	9.0	0.0	9.0	11	11	98 Btuh
4	2 NFRC	0.22, 0.33	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	S		1.5ft	1.3ft	54.0	54.0	0.0	11	13	588 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
	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		1815.0		1.40		2543 Btuh
	Ceiling Total								1815 (sqft)					2543 Btuh
Floors	Type							R-Value		Size		HTM		Load
1	Slab On Grade							0.0		1815 (ft-perimeter)		0.0		0 Btuh
	Floor Total								1815.0 (sqft)					0 Btuh
	Envelope Subtotal:													8451 Btuh
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load
	Natural					0.12		16335		1		33.6		
Internal gain						Occupants		Btuh/occupant		Appliance		Load		
						6		X 230		+		3400		
	Sensible Envelope Load:													13929 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.243)			3386 Btuh
	Sensible Load All Zones													17315 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Gator & Lori David

Project Title:
1815 Model

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32024

1/5/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13929 Btuh
	Sensible Duct Load	3386 Btuh
	Total Sensible Zone Loads	17315 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17315 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1158 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	444 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2802 Btuh
	TOTAL GAIN	20118 Btuh

EQUIPMENT

1. Central Unit	#	36000 Btuh
-----------------	---	------------

*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

Project Title:
1815 Model

Lake City, FL 32024

Building Type: User

1/5/2022

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	1815		1.3	2312 Btuh
Ceiling Total					1815(sqft)			2312Btuh
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					1815 sqft			8307 Btuh
Envelope Subtotal:								18665 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	16335	1.00	44.7		1959 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.155)							3201 Btuh
All Zones	Sensible Subtotal All Zones							23825 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Gator & Lori David

Project Title:

1815 Model

Lake City, FL 32024

Building Type: User

1/5/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	23825 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	23825 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36000 Btuh
-----------------------	---	------------

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