

Residential System Sizing Calculation

Summary

Timothy & Lisa Bixler
266 SW Challenger Ln
Lake City, FL 32025

Project Title:
Bixler Residence

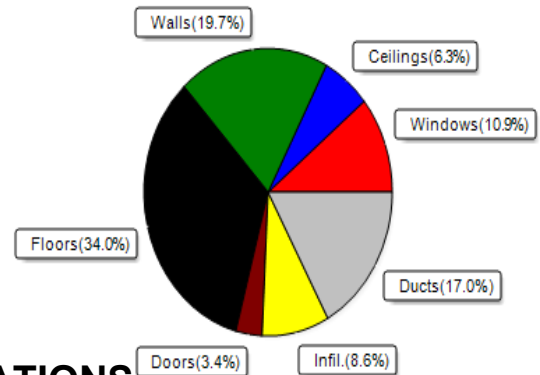
1/22/2025

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (79F) Humidity difference(54gr.)			
Winter design temperature(MJ8 99%/Cu)33 F		Summer design temperature(MJ8 99%/Cu)99 F	
Winter setpoint 70 F		Summer setpoint 75 F	
Winter temperature difference 37 F		Summer temperature difference 24 F	
Total heating load calculation	19846 Btuh	Total cooling load calculation	18282 Btuh
Submitted heating capacity % of calc Btuh		Submitted cooling capacity % of calc Btuh	
Total (Electric Heat Pump) 107.6 21348		Sensible (SHR = 0.75) 82.0 12475	
Heat Pump + Auxiliary(0.0kW) 107.6 21348		Latent 135.6 4158	
		Total (Electric Heat Pump) 91.0 16633	

WINTER CALCULATIONS

Winter Heating Load (for 1215 sqft)

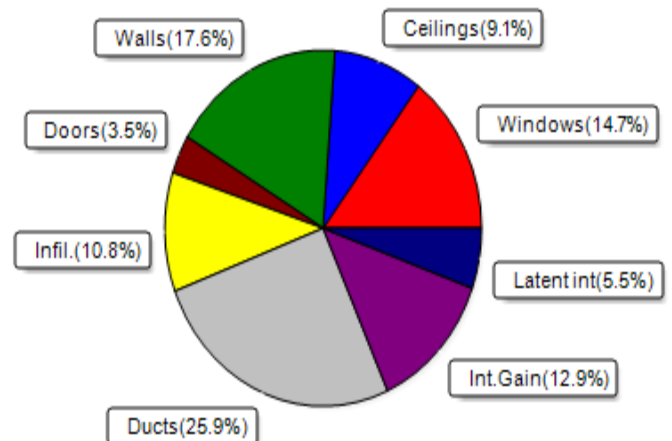
Load component		Load	
Window total	163 sqft	2171 Btuh	
Wall total	1189 sqft	3905 Btuh	
Door total	40 sqft	681 Btuh	
Ceiling total	1337 sqft	1255 Btuh	
Floor total	1215 sqft	6753 Btuh	
Infiltration	42 cfm	1698 Btuh	
Duct loss		3383 Btuh	
Subtotal		19846 Btuh	
Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
TOTAL HEAT LOSS		19846 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 1215 sqft)

Load component		Load	
Window total	163 sqft	2693 Btuh	
Wall total	1189 sqft	3219 Btuh	
Door total	40 sqft	644 Btuh	
Ceiling total	1337 sqft	1662 Btuh	
Floor total		0 Btuh	
Infiltration	31 cfm	826 Btuh	
Internal gain		2350 Btuh	
Duct gain		3822 Btuh	
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		15216 Btuh	
Latent gain(ducts)		918 Btuh	
Latent gain(infiltration)		1149 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1000 Btuh	
Total latent gain		3067 Btuh	
TOTAL HEAT GAIN		18282 Btuh	



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____ 01 / 22 / 2025

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Timothy & Lisa Bixler
266 SW Challenger Ln
Lake City, FL 32025

Project Title:
Bixler Residence
Building Type: User

1/22/2025

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%/Cu)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Vinyl	0.36	N	45.0		13.3	599 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	15.0		13.3	200 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	4.0		13.3	53 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	4.0		13.3	53 Btuh
5	2, NFRC 0.25	Vinyl	0.36	S	20.0		13.3	266 Btuh
6	2, NFRC 0.25	TIM	0.36	W	40.0		13.3	533 Btuh
7	2, NFRC 0.25	TIM	0.36	S	20.0		13.3	266 Btuh
8	2, NFRC 0.25	Vinyl	0.36	S	15.0		13.3	200 Btuh
Window Total					163.0(sqft)			2171 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	323		3.28	1061 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	269		3.28	883 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	233		3.28	764 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	86		3.28	282 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	117		3.28	383 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	162		3.28	532 Btuh
Wall Total					1189(sqft)			3905 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
2	Insulated - Exterior, n		(0.460)		20		17.0	340 Btuh
Door Total					40(sqft)			681Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Metal		(0.025)	38.0/0.0	1337		0.94	1255 Btuh
Ceiling Total					1337(sqft)			1255Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	154.7 ft(perim.)		43.7	6753 Btuh
Floor Total					1215 sqft			6753 Btuh
Envelope Subtotal:								14765 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.23	10935	1.00	41.9		1698 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.205)							3383 Btuh
All Zones	Sensible Subtotal All Zones							19846 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Timothy & Lisa Bixler
266 SW Challenger Ln
Lake City, FL 32025

Project Title:
Bixler Residence
Building Type: User

1/22/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	19846 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	19846 Btuh

EQUIPMENT

1. Electric Heat Pump	#	21348 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

Timothy & Lisa Bixler
266 SW Challenger Ln
Lake City, FL 32025

Project Title:
Bixler Residence

1/22/2025

Reference City: Gainesville, FL (Defaults)
Humidity difference: 54gr.

Temperature Difference: 24.0F(MJ8 99%/Cu)
Summer Setpoint: 75 °F (Required Manual J default)

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	N		1.5ft.	1.0ft.	45.0	0.0	45.0	14	14	625	Btuh
2	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	4.0ft.	15.0	0.0	15.0	14	33	491	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	2.0ft.	4.0	0.0	4.0	14	33	131	Btuh
4	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	4.0	4.0	0.0	14	16	56	Btuh
5	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	20.0	20.0	0.0	14	16	278	Btuh
6	2 NFRC	0.25, 0.36	No	No	W		8.5ft.	1.0ft.	40.0	36.3	3.7	14	33	625	Btuh
7	2 NFRC	0.25, 0.36	No	No	S		15.5f	1.0ft.	20.0	20.0	0.0	14	16	278	Btuh
8	2 NFRC	0.25, 0.36	No	No	S		15.5f	1.0ft.	15.0	15.0	0.0	14	16	208	Btuh
	Window Total								163 (sqft)					2693 Btuh	
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext					0.09	13.0/0.0	323.0			2.7		874 Btuh		
2	Frame - Wood - Ext					0.09	13.0/0.0	269.0			2.7		728 Btuh		
3	Frame - Wood - Ext					0.09	13.0/0.0	232.5			2.7		629 Btuh		
4	Frame - Wood - Ext					0.09	13.0/0.0	86.0			2.7		233 Btuh		
5	Frame - Wood - Ext					0.09	13.0/0.0	116.5			2.7		315 Btuh		
6	Frame - Wood - Ext					0.09	13.0/0.0	162.0			2.7		439 Btuh		
	Wall Total							1189 (sqft)					3219 Btuh		
Doors	Type							Area (sqft)			HTM		Load		
1	Insulated - Exterior							20.0			16.1		322 Btuh		
2	Insulated - Exterior							20.0			16.1		322 Btuh		
	Door Total							40 (sqft)					644 Btuh		
Ceilings	Type/Color/Surface					U-Value	R-Value	Area(sqft)			HTM		Load		
1	Vented Attic/DarkMetal/RB					0.025	38.0/0.0	1336.5			1.24		1662 Btuh		
	Ceiling Total							1337 (sqft)					1662 Btuh		
Floors	Type						R-Value	Size			HTM		Load		
1	Slab On Grade						0.0	1215 (ft-perimeter)			0.0		0 Btuh		
	Floor Total							1215.0 (sqft)					0 Btuh		
	Envelope Subtotal:													8218 Btuh	
Infiltration	Type					Average ACH	Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural					0.17	10935		1		31.4		826 Btuh		
Internal gain						Occupants	Btuh/occupant		Appliance		Load				
						5	X 230	+		1200		2350 Btuh			
	Sensible Envelope Load:													11394 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.335)		3822 Btuh		
	Sensible Load All Zones													15216 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Timothy & Lisa Bixler
266 SW Challenger Ln
Lake City, FL 32025

Project Title:
Bixler Residence

Climate:FL_GAINESVILLE_REGIONAL_A

1/22/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11394 Btuh
	Sensible Duct Load	3822 Btuh
	Total Sensible Zone Loads	15216 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15216 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	1149 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	918 Btuh
	Latent occupant gain (5.0 people @ 200 Btuh per person)	1000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3067 Btuh
	TOTAL GAIN	18282 Btuh

EQUIPMENT

1. Central Unit	#	16633 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