

Residential System Sizing Calculation

Summary

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_

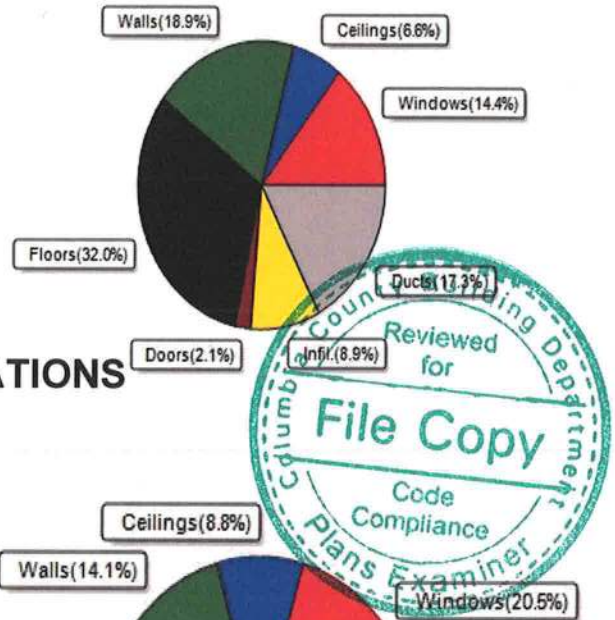
2/3/2024

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	39185 Btuh	Total cooling load calculation	31975 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 39185	Sensible (SHR = 0.70)	84.0 22382
Heat Pump + Auxiliary(0.0kW)	100.0 39185	Latent	180.5 9592
		Total (Electric Heat Pump)	100.0 31975

WINTER CALCULATIONS

Winter Heating Load (for 2302 sqft)

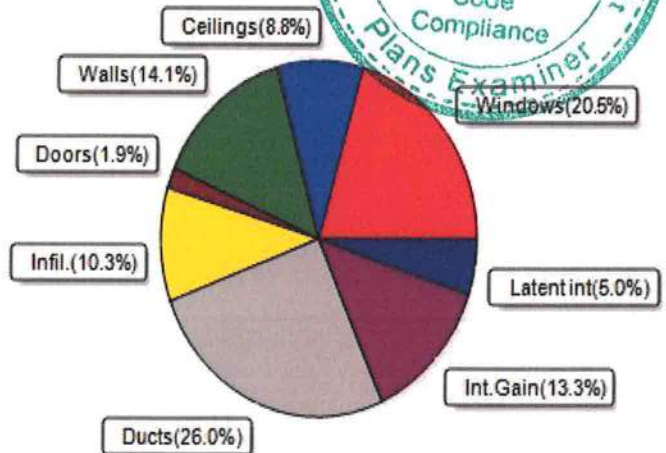
Load component		Load	
Window total	391 sqft	5627	Btuh
Wall total	2088 sqft	7412	Btuh
Door total	44 sqft	810	Btuh
Ceiling total	2532 sqft	2571	Btuh
Floor total	2302 sqft	12524	Btuh
Infiltration	79 cfm	3479	Btuh
Duct loss		6764	Btuh
Subtotal		39185	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
TOTAL HEAT LOSS		39185	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2302 sqft)

Load component		Load	
Window total	391 sqft	6571	Btuh
Wall total	2088 sqft	4516	Btuh
Door total	44 sqft	607	Btuh
Ceiling total	2532 sqft	2828	Btuh
Floor total		0	Btuh
Infiltration	60 cfm	1239	Btuh
Internal gain		4240	Btuh
Duct gain		6659	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		26659	Btuh
Latent gain(ducts)		1659	Btuh
Latent gain(infiltration)		2056	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		5316	Btuh
TOTAL HEAT GAIN		31975	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 02 / 03 / 2024

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_
Building Type: User

2/3/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)
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	S	18.0		14.4	259 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	4.0		14.4	58 Btuh
6	2, NFRC 0.25	TIM	0.36	W	17.8		14.4	256 Btuh
7	2, NFRC 0.25	TIM	0.36	N	128.0		14.4	1843 Btuh
8	2, NFRC 0.25	Vinyl	0.36	E	36.0		14.4	518 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	36.0		14.4	518 Btuh
10	2, NFRC 0.25	Vinyl	0.36	E	18.0		14.4	259 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	36.0		14.4	518 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
13	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	12.0		14.4	173 Btuh
Window Total					390.8(sqft)			5627 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	145		3.55	514 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	98		3.55	349 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	39		3.55	138 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	374		3.55	1328 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	105		3.55	373 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	85		3.55	303 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	227 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	67		3.55	239 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	82		3.55	291 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	204		3.55	724 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	263		3.55	934 Btuh
15	Frame - Wood	- Adj	(0.089)	13.0/0.0	196		3.55	696 Btuh
16	Frame - Wood	- Adj	(0.089)	13.0/0.0	167		3.55	592 Btuh
Wall Total					2088(sqft)			7412 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		24		18.4	442 Btuh
2	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					44(sqft)			810Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	2532		1.0	2571 Btuh
Ceiling Total					2532(sqft)			2571Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_
Building Type: User

2/3/2024

Floors 1	Type Slab On Grade Floor Total	Ueff. (1.180)	R-Value 0.0	Size X 265.3 ft(perim.) 2302 sqft	HTM= 47.2	Load 12524 Btuh 12524 Btuh
Envelope Subtotal:						28942 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.23	Volume(cuft) 20718	Wall Ratio 1.00	CFM= 79.4	3479 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.209)	6764 Btuh
All Zones	Sensible Subtotal All Zones					39185 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss Total Heat Loss	(Ex:0 cfm; Sup:0 cfm)	39185 Btuh 0 Btuh 39185 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	39185 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

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_

2/3/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
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	S		8.5ft.	1.0ft.	18.0	18.0	0.0	12	14	218	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		1.0ft.	4.0ft.	30.0	10.1	19.9	12	14	402	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh
6	2 NFRC	0.25, 0.36	No	No	W		5.5ft.	1.0ft.	17.8	9.5	8.3	12	31	371	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	128.0	0.0	128.0	12	12	1549	Btuh
8	2 NFRC	0.25, 0.36	No	No	E		4.5ft.	1.0ft.	36.0	16.4	19.6	12	31	805	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	36.0	0.0	36.0	12	12	436	Btuh
10	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	18.0	0.7	17.3	12	31	543	Btuh
11	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	36.0	0.0	36.0	12	12	436	Btuh
12	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
13	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh
14	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	12.0	1.5	10.5	12	31	344	Btuh
Window Total									391 (sqft)					6571 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.0		144.7		2.3		327 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		30.0		2.3		68 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		98.3		2.3		223 Btuh				
4	Frame - Wood - Ext		0.09		13.0/0.0		39.0		2.3		88 Btuh				
5	Frame - Wood - Ext		0.09		13.0/0.0		96.0		2.3		217 Btuh				
6	Frame - Wood - Ext		0.09		13.0/0.0		374.0		2.3		846 Btuh				
7	Frame - Wood - Ext		0.09		13.0/0.0		105.0		2.3		238 Btuh				
8	Frame - Wood - Ext		0.09		13.0/0.0		72.2		2.3		163 Btuh				
9	Frame - Wood - Ext		0.09		13.0/0.0		85.3		2.3		193 Btuh				
10	Frame - Wood - Ext		0.09		13.0/0.0		64.0		2.3		145 Btuh				
11	Frame - Wood - Ext		0.09		13.0/0.0		67.3		2.3		152 Btuh				
12	Frame - Wood - Ext		0.09		13.0/0.0		82.0		2.3		186 Btuh				
13	Frame - Wood - Ext		0.09		13.0/0.0		204.0		2.3		462 Btuh				
14	Frame - Wood - Ext		0.09		13.0/0.0		263.0		2.3		595 Btuh				
15	Frame - Wood - Adj		0.09		13.0/0.0		196.0		1.7		331 Btuh				
16	Frame - Wood - Adj		0.09		13.0/0.0		166.7		1.7		281 Btuh				
Wall Total							2088 (sqft)			4516 Btuh					
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		24.0		13.8	331 Btuh									
2	Insulated - Garage		20.0		13.8	276 Btuh									
Door Total			44 (sqft)		607 Btuh										
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load									
1	Vented Attic/DarkShingle/RB	0.025	38.0/0.0	2532.0	1.12	2828 Btuh									
Ceiling Total				2532 (sqft)		2828 Btuh									
Floors	Type	R-Value		Size	HTM	Load									
1	Slab On Grade	0.0		2302 (ft-perimeter)	0.0	0 Btuh									
Floor Total				2302.0 (sqft)		0 Btuh									
Envelope Subtotal:						14521 Btuh									

Manual J Summer Calculations

Residential Load - Component Details (continued)

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_

Climate:FL_GAINESVILLE_REGIONAL_A

2/3/2024

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 20718	Wall Ratio 1	CFM= 59.6	Load 1239 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	2400	Load 4240 Btuh
	Sensible Envelope Load:					20000 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.333)					6659 Btuh
	Sensible Load All Zones					26659 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

The Bell's
255 Sugar Cane Lane
Lake City, FL 32055

Project Title:
Bell Res_

Climate: FL_GAINESVILLE_REGIONAL_A

2/3/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	20000 Btuh
	Sensible Duct Load	6659 Btuh
	Total Sensible Zone Loads	26659 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	26659 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2056 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1659 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5316 Btuh
	TOTAL GAIN	31975 Btuh

EQUIPMENT

1. Central Unit	#	31975 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