

Residential System Sizing Calculation

Summary

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7

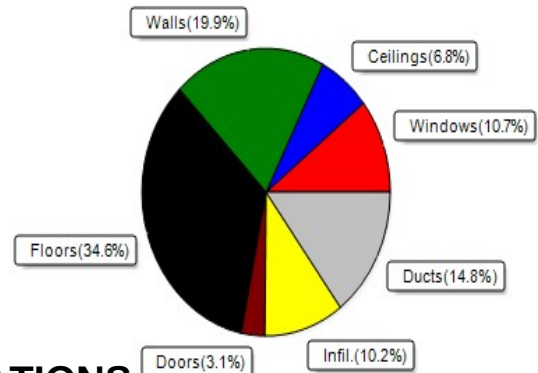
2023-02-23

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	24306 Btuh	Total cooling load calculation	22865 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	107.0 26000	Sensible (SHR = 0.75)	99.0 19500
Heat Pump + Auxiliary(0.0kW)	107.0 26000	Latent	204.8 6500
		Total (Electric Heat Pump)	113.7 26000

WINTER CALCULATIONS

Winter Heating Load (for 1525 sqft)

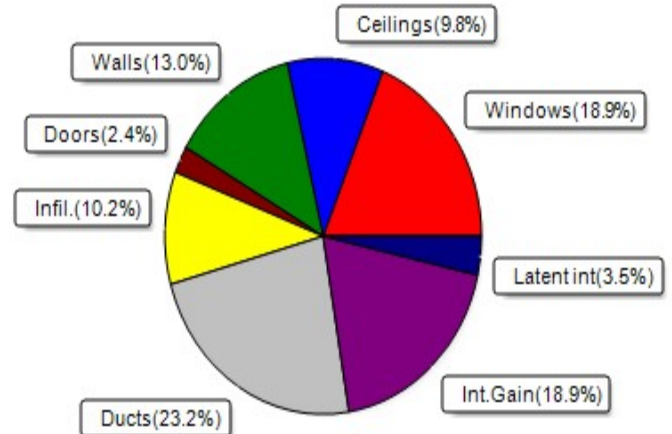
Load component		Load	
Window total	196 sqft	2592	Btuh
Wall total	1363 sqft	4838	Btuh
Door total	47 sqft	747	Btuh
Ceiling total	1633 sqft	1658	Btuh
Floor total	1525 sqft	8402	Btuh
Infiltration	56 cfm	2467	Btuh
Duct loss		3603	Btuh
Subtotal		24306	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		24306	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1525 sqft)

Load component		Load	
Window total	196 sqft	4313	Btuh
Wall total	1363 sqft	2982	Btuh
Door total	47 sqft	560	Btuh
Ceiling total	1633 sqft	2238	Btuh
Floor total		0	Btuh
Infiltration	42 cfm	879	Btuh
Internal gain		4320	Btuh
Duct gain		4400	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		19691	Btuh
Latent gain(ducts)		915	Btuh
Latent gain(infiltration)		1459	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3174	Btuh
TOTAL HEAT GAIN		22865	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2023-02-23**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7
Building Type: User

2023-02-23

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 0.23	Vinyl	0.33	N	30.0		13.2	396 Btuh
2	2, NFRC 0.23	Vinyl	0.33	N	13.3		13.2	176 Btuh
3	2, NFRC 0.23	Vinyl	0.33	N	36.0		13.2	475 Btuh
4	2, NFRC 0.23	Vinyl	0.33	N	15.0		13.2	198 Btuh
5	2, NFRC 0.23	Vinyl	0.33	E	4.0		13.2	53 Btuh
6	2, NFRC 0.23	Vinyl	0.33	S	36.0		13.2	475 Btuh
7	2, NFRC 0.23	Vinyl	0.33	S	36.0		13.2	475 Btuh
8	2, NFRC 0.23	Vinyl	0.33	W	6.0		13.2	79 Btuh
9	2, NFRC 0.23	Vinyl	0.33	W	20.0		13.2	264 Btuh
	Window Total				196.3(sqft)			2592 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	84		3.55	298 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	57		3.55	202 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	84		3.55	298 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	58		3.55	205 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	85		3.55	302 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	260		3.55	923 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	21		3.55	73 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	229 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	238		3.55	845 Btuh
	Wall Total				1363(sqft)			4838 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		7		16.0	107 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Garage, n		(0.400)		20		16.0	320 Btuh
	Door Total				47(sqft)			747Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/D/Shing		(0.025)	38.0/0.0	1549		1.0	1573 Btuh
2	Knee Wall/D/Shing		(0.025)	38.0/0.0	84		1.0	85 Btuh
	Ceiling Total				1633(sqft)			1658Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	178.0 ft(perim.)		47.2	8402 Btuh
	Floor Total				1525 sqft			8402 Btuh
	Envelope Subtotal:							18236 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7
Building Type: User

2023-02-23

Infiltration	Type Natural	Wholehouse ACH 0.23	Volume(cuft) 14411	Wall Ratio 1.00	CFM= 56.3	2467 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.174)					3603 Btuh
All Zones	Sensible Subtotal All Zones					24306 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	24306 Btuh 0 Btuh 24306 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	26000 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

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7

2023-02-23

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	0.23, 0.33	No	No	N		1.5ft	1.0ft	30.0	1.5	28.5	11	28	828	Btuh	
2	2 NFRC	0.23, 0.33	No	No	N		7.8ft	1.5ft	13.3	10.0	3.3	11	28	206	Btuh	
3	2 NFRC	0.23, 0.33	No	No	N		7.8ft	1.0ft	36.0	33.0	3.0	11	28	452	Btuh	
4	2 NFRC	0.23, 0.33	No	No	N		1.5ft	1.0ft	15.0	0.7	14.3	11	28	414	Btuh	
5	2 NFRC	0.23, 0.33	No	No	E		1.5ft	1.0ft	4.0	4.0	0.0	11	13	44	Btuh	
6	2 NFRC	0.23, 0.33	No	No	S		1.0ft	6.0ft	36.0	0.0	36.0	11	28	1024	Btuh	
7	2 NFRC	0.23, 0.33	No	No	S		1.5ft	1.0ft	36.0	1.5	34.5	11	28	998	Btuh	
8	2 NFRC	0.23, 0.33	No	No	W		1.5ft	1.0ft	6.0	0.0	6.0	11	11	67	Btuh	
9	2 NFRC	0.23, 0.33	No	No	W		1.5ft	1.0ft	20.0	0.0	20.0	11	11	222	Btuh	
	Excursion													57	Btuh	
	Window Total								196 (sqft)						4313	Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load						
1	Frame - Wood - Ext	0.09	13.0/0.0	84.0	2.3	190	Btuh									
2	Frame - Wood - Ext	0.09	13.0/0.0	57.0	2.3	129	Btuh									
3	Frame - Wood - Ext	0.09	13.0/0.0	84.0	2.3	190	Btuh									
4	Frame - Wood - Ext	0.09	13.0/0.0	57.8	2.3	131	Btuh									
5	Frame - Wood - Ext	0.09	13.0/0.0	85.0	2.3	192	Btuh									
6	Frame - Wood - Ext	0.09	13.0/0.0	96.0	2.3	217	Btuh									
7	Frame - Wood - Ext	0.09	13.0/0.0	260.0	2.3	588	Btuh									
8	Frame - Wood - Ext	0.09	13.0/0.0	78.0	2.3	177	Btuh									
9	Frame - Wood - Ext	0.09	13.0/0.0	30.0	2.3	68	Btuh									
10	Frame - Wood - Ext	0.09	13.0/0.0	20.5	2.3	46	Btuh									
11	Frame - Wood - Ext	0.09	13.0/0.0	30.0	2.3	68	Btuh									
12	Frame - Wood - Ext	0.09	13.0/0.0	64.5	2.3	146	Btuh									
13	Frame - Wood - Adj	0.09	13.0/0.0	178.0	1.7	300	Btuh									
14	Frame - Wood - Ext	0.09	13.0/0.0	238.0	2.3	539	Btuh									
	Wall Total		1363 (sqft)		2982		Btuh									
Doors	Type	Area (sqft)		HTM		Load										
1	Insulated - Exterior	6.7	12.0	80	Btuh											
2	Insulated - Exterior	20.0	12.0	240	Btuh											
3	Insulated - Garage	20.0	12.0	240	Btuh											
	Door Total		47 (sqft)		560		Btuh									
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load										
1	Vented Attic/DarkShingle	0.025	38.0/0.0	1549.0	1.37	2123	Btuh									
2	Knee Wall/DarkShingle	0.025	38.0/0.0	84.0	1.37	115	Btuh									
	Ceiling Total		1633 (sqft)		2238		Btuh									
Floors	Type	R-Value		Size		Load										
1	Slab On Grade	0.0	1525 (ft-perimeter)	0.0	0	Btuh										
	Floor Total		1525.0 (sqft)		0		Btuh									
	Envelope Subtotal:					10092	Btuh									

Manual J Summer Calculations

Residential Load - Component Details (continued)

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7

Climate:FL_GAINESVILLE_REGIONAL_A

2023-02-23

Infiltration	Type Natural	Average ACH 0.18	Volume(cuft) 14411	Wall Ratio 1	CFM= 42.3	Load 879 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	3400	Load 4320 Btuh
					Sensible Envelope Load:	15291 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.288)	4400 Btuh
					Sensible Load All Zones	19691 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Spec - Sunset 7
143 NW Geranium Ct
Lake City, FL 32055

Project Title:
230220 Sunset 7

Climate:FL_GAINESVILLE_REGIONAL_A

2023-02-23

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15291 Btuh
	Sensible Duct Load	4400 Btuh
	Total Sensible Zone Loads	19691 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19691 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1459 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	915 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3174 Btuh
	TOTAL GAIN	22865 Btuh

EQUIPMENT

1. Central Unit	#	26000 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