Residential System Sizing Calculation

Summary

Shelley, Dan & Rachel
SW Mandiba Drive
Lake City, FL

Project Title:
250639 Shelley

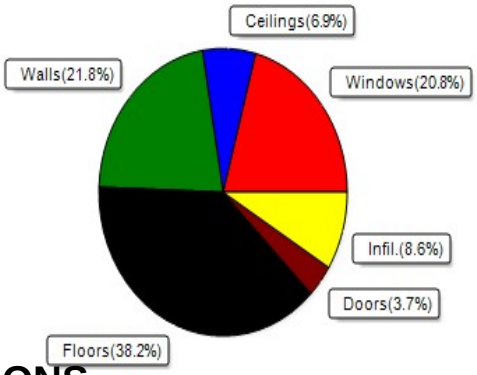
07/02/25

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	**13958**	**Btuh**	**Total cooling load calculation**	**11668**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	107.5	15000	Sensible (SHR = 0.75)	106.5	11250
Heat Pump + Auxiliary(0.0kW)	107.5	15000	Latent	338.1	3750
			Total (Electric Heat Pump)	128.6	15000

WINTER CALCULATIONS

Winter Heating Load (for 798 sqft)

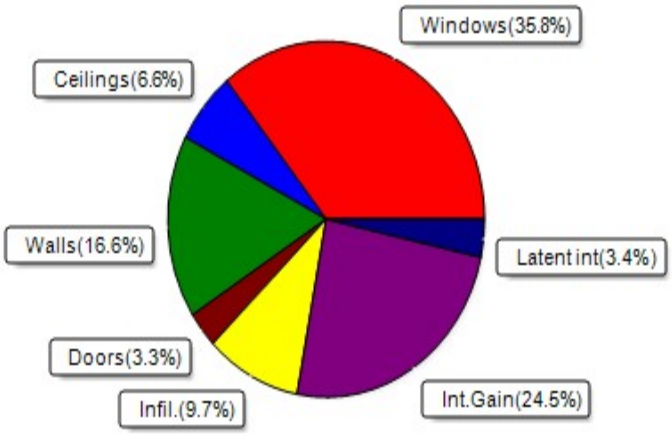
Load component			Load	
Window total	242	sqft	2907	Btuh
Wall total	857	sqft	3044	Btuh
Door total	32	sqft	512	Btuh
Ceiling total	798	sqft	962	Btuh
Floor total	798	sqft	5334	Btuh
Infiltration	27	cfm	1200	Btuh
Duct loss			0	Btuh
Subtotal			**13958**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**13958**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 798 sqft)

Load component			Load	
Window total	242	sqft	4178	Btuh
Wall total	857	sqft	1941	Btuh
Door total	32	sqft	384	Btuh
Ceiling total	798	sqft	769	Btuh
Floor total			0	Btuh
Infiltration	21	cfm	427	Btuh
Internal gain			2860	Btuh
Duct gain			0	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**10559**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			709	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			400	Btuh
Total latent gain			**1109**	**Btuh**
TOTAL HEAT GAIN			**11668**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2025-07-02

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Shelley, Dan & Rachel
SW Mandiba Drive
Lake City, FL

Project Title:
250639 Shelley
Building Type: User

07/02/25

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 0.22	Vinyl	0.30	N	6.0	12.0	72 Btuh
2	2, NFRC 0.22	Vinyl	0.30	N	24.0	12.0	288 Btuh
3	2, NFRC 0.22	Vinyl	0.30	E	48.0	12.0	576 Btuh
4	2, NFRC 0.22	Vinyl	0.30	E	20.3	12.0	243 Btuh
5	2, NFRC 0.22	Vinyl	0.30	S	48.0	12.0	576 Btuh
6	2, NFRC 0.22	Metal	0.30	W	96.0	12.0	1152 Btuh
	Window Total				242.3(sqft)		2907 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	237	3.55	840 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	231	3.55	820 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	219	3.55	776 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	171	3.55	608 Btuh
	Wall Total				857(sqft)		3044 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)	32	16.0	512 Btuh
	Door Total			32(sqft)		512Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing	(0.241)	0.0/22.0	798	1.2	962 Btuh
	Ceiling Total			798(sqft)		962Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	113.0 ft(perim.)	47.2	5334 Btuh
	Floor Total			798 sqft		5334 Btuh

	Envelope Subtotal:	12758 Btuh

Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.21	7980	1.00	27.4	1200 Btuh

Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)	0 Btuh
All Zones	**Sensible Subtotal All Zones**	**13958 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Shelley, Dan & Rachel
SW Mandiba Drive
Lake City, FL

Project Title:
250639 Shelley
Building Type: User

07/02/25

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	13958 Btuh 0 Btuh 13958 Btuh

EQUIPMENT

1. Electric Heat Pump	#	15000 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)

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System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Shelley, Dan & Rachel
SW Mandiba Drive
Lake City, FL

Project Title:
250639 Shelley

07/02/25

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

	Type*					Overhang		Window Area(sqft)			HTM		Load	
Window	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded		
1	2 NFRC	0.22, 0.30		No	No	N	1.5ft	1.5ft	6.0	1.9	4.1	10	21	107	Btuh
2	2 NFRC	0.22, 0.30		No	No	N	1.5ft	1.5ft	24.0	3.9	20.1	10	21	472	Btuh
3	2 NFRC	0.22, 0.30		No	No	E	1.5ft	1.5ft	48.0	0.0	48.0	10	20	983	Btuh
4	2 NFRC	0.22, 0.30		No	No	E	1.5ft	1.5ft	20.3	0.0	20.3	10	20	415	Btuh
5	2 NFRC	0.22, 0.30		No	No	S	1.5ft	1.5ft	48.0	0.0	48.0	10	20	983	Btuh
6	2 NFRC	0.22, 0.30		No	No	W	8.5ft	1.5ft	96.0	96.0	0.0	10	21	991	Btuh
	Excursion													226	Btuh
	Window Total								242 (sqft)					4178	Btuh

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load	
			Cav/Sheath				
1	Frame - Wood - Ext	0.09	13.0/0.0	236.7	2.3	536	Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	230.9	2.3	523	Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	218.7	2.3	495	Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	171.2	2.3	387	Btuh
	Wall Total			857 (sqft)		1941	Btuh

Doors	Type	Area (sqft)	HTM	Load	
1	Insulated - Exterior	32.0	12.0	384	Btuh
	Door Total	32 (sqft)		384	Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load	
1	Unvented Attic/DarkShingle	0.241	0.0/22.0	798.0	0.96	769	Btuh
	Ceiling Total			798 (sqft)		769	Btuh

Floors	Type	R-Value	Size	HTM	Load	
1	Slab On Grade	0.0	798 (ft-perimeter)	0.0	0	Btuh
	Floor Total		798.0 (sqft)		0	Btuh

	Envelope Subtotal:	7272	Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
	Natural	0.15	7980	1	20.5	427	Btuh

Internal gain	Occupants		Btuh/occupant		Appliance	Load	
	2	X	230	+	2400	2860	Btuh

	Sensible Envelope Load:	10559	Btuh

Duct load	NA, Supply(R0.0-None), Return(R0.0-None)	(DGM of 0.000)	0	Btuh

	Sensible Load All Zones	**10559**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Shelley, Dan & Rachel
SW Mandiba Drive
Lake City, FL

Project Title: 250639 Shelley

Climate:FL_GAINESVILLE_REGIONAL_A

07/02/25

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**10559**	**Btuh**
	Sensible Duct Load	0	Btuh
	Total Sensible Zone Loads	**10559**	**Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0	Btuh
	Blower	0	Btuh
	Total sensible gain	**10559**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	709	Btuh
	Latent ventilation gain	0	Btuh
	Latent duct gain	0	Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400	Btuh
	Latent other gain	0	Btuh
	Latent total gain	**1109**	**Btuh**
	TOTAL GAIN	**11668**	**Btuh**

EQUIPMENT

1. Central Unit	#	15000 Btuh

*Key: Window types (Panes - 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)

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