Residential System Sizing Calculation

Summary

Project Title:
Steckbeck Residence

, FL

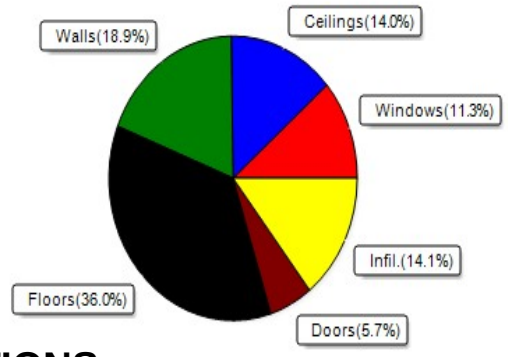
3/18/2026

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	**29647**	**Btuh**	**Total cooling load calculation**	**23610**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	161.9	48000	Sensible (SHR = 0.75)	184.2	36000
Heat Pump + Auxiliary(0.0kW)	161.9	48000	Latent	295.3	12000
			Total (Electric Heat Pump)	203.3	48000

WINTER CALCULATIONS

Winter Heating Load (for 2209 sqft)

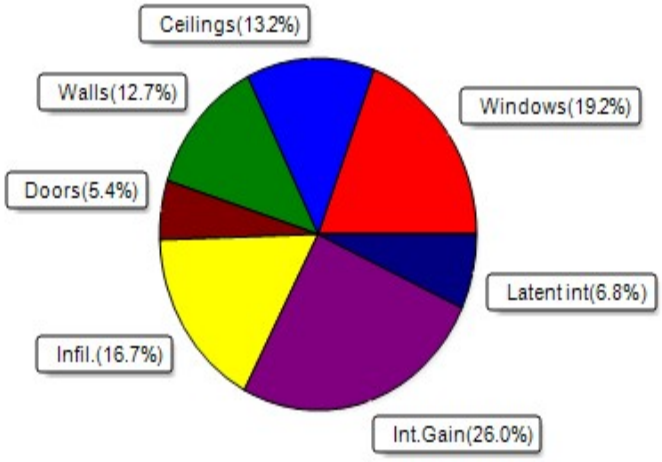
Load component			Load	
Window total	323	sqft	3359	Btuh
Wall total	1814	sqft	5608	Btuh
Door total	92	sqft	1693	Btuh
Ceiling total	2209	sqft	4152	Btuh
Floor total	See detail report		10667	Btuh
Infiltration	95	cfm	4168	Btuh
Duct loss			0	Btuh
Subtotal			**29647**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**29647**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2209 sqft)

Load component			Load	
Window total	323	sqft	4537	Btuh
Wall total	1814	sqft	3000	Btuh
Door total	92	sqft	1270	Btuh
Ceiling total	2209	sqft	3114	Btuh
Floor total			0	Btuh
Infiltration	71	cfm	1485	Btuh
Internal gain			6140	Btuh
Duct gain			0	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**19546**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			2464	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1600	Btuh
Total latent gain			**4064**	**Btuh**
TOTAL HEAT GAIN			**23610**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 3/18/26

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Steckbeck Residence

, FL

3/18/2026

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	0.20,	0.26	No	No	N	1.5ft	1.3ft	24.0	0.0	24.0	9	9	220	Btuh
2	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	24.0	0.0	24.0	9	9	220	Btuh
3	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	48.0	0.0	48.0	9	9	439	Btuh
4	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	6.0	0.0	6.0	9	9	55	Btuh
5	2 NFRC	0.20,	0.26	No	No	E	1.5ft	1.3ft	4.0	0.0	4.0	9	24	97	Btuh
6	2 NFRC	0.20,	0.26	No	No	E	1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh
7	2 NFRC	0.20,	0.26	No	No	E	1.5ft	1.3ft	8.0	0.0	8.0	9	24	194	Btuh
8	2 NFRC	0.20,	0.26	No	No	S	1.5ft	1.3ft	36.0	36.0	0.0	9	11	329	Btuh
9	2 NFRC	0.20,	0.26	No	No	S	1.5ft	1.3ft	8.0	8.0	0.0	9	11	73	Btuh
10	2 NFRC	0.20,	0.26	No	No	W	1.5ft	1.3ft	15.0	0.0	15.0	9	24	363	Btuh
11	2 NFRC	0.20,	0.26	No	No	S	1.5ft	1.3ft	36.0	36.0	0.0	9	11	329	Btuh
12	2 NFRC	0.20,	0.26	No	No	W	1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh
13	2 NFRC	0.20,	0.26	No	No	W	1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh
14	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	15.0	0.0	15.0	9	9	137	Btuh
15	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	6.0	0.0	6.0	9	9	55	Btuh
16	2 NFRC	0.20,	0.26	No	No	N	1.5ft	1.3ft	15.0	0.0	15.0	9	9	137	Btuh
	Window Total										323 (sqft)			4537	Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load	
1	Frame - Wood - Ext	0.08	19.0/0.0	248.0	1.7	410	Btuh
2	Frame - Wood - Ext	0.08	19.0/0.0	451.7	1.7	747	Btuh
3	Frame - Wood - Ext	0.08	19.0/0.0	41.7	1.7	69	Btuh
4	Frame - Wood - Ext	0.08	19.0/0.0	101.7	1.7	168	Btuh
5	Frame - Wood - Ext	0.08	19.0/0.0	82.7	1.7	137	Btuh
6	Frame - Wood - Ext	0.08	19.0/0.0	136.7	1.7	226	Btuh
7	Frame - Wood - Ext	0.08	19.0/0.0	121.7	1.7	201	Btuh
8	Frame - Wood - Ext	0.08	19.0/0.0	133.3	1.7	220	Btuh
9	Frame - Wood - Ext	0.08	19.0/0.0	26.0	1.7	43	Btuh
10	Frame - Wood - Ext	0.08	19.0/0.0	100.0	1.7	165	Btuh
11	Frame - Wood - Ext	0.08	19.0/0.0	35.0	1.7	58	Btuh
12	Frame - Wood - Ext	0.08	19.0/0.0	114.3	1.7	189	Btuh
13	Frame - Wood - Ext	0.08	19.0/0.0	48.0	1.7	79	Btuh
14	Frame - Wood - Ext	0.08	19.0/0.0	46.0	1.7	76	Btuh
15	Frame - Wood - Ext	0.08	19.0/0.0	127.7	1.7	211	Btuh
	Wall Total			1814 (sqft)		3000	Btuh

Doors	Type	Area (sqft)	HTM	Load	
1	Insulated - Exterior	24.0	13.8	331	Btuh
2	Insulated - Exterior	24.0	13.8	331	Btuh
3	Insulated - Exterior	24.0	13.8	331	Btuh
4	Insulated - Exterior	20.0	13.8	276	Btuh
	Door Total	92 (sqft)		1270	Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load	
1	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0	1799.0	1.41	2536	Btuh
2	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0	42.0	1.41	59	Btuh
3	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0	368.0	1.41	519	Btuh
	Ceiling Total			2209 (sqft)		3114	Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Steckbeck Residence
Climate:FL_GAINESVILLE_REGIONAL_A

, FL

3/18/2026

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1799 (ft-perimeter)	0.0	0 Btuh
2	Slab On Grade	0.0	42 (ft-perimeter)	0.0	0 Btuh
3	Interior	0.0	368 (sqft)	0.0	0 Btuh
	Floor Total		2209.0 (sqft)		0 Btuh
			Envelope Subtotal:		11921 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.20	21312	1	71.3	1485 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		8	X 230	+	4300	6140 Btuh
				Sensible Envelope Load:		19546 Btuh
Duct load	Average sealed, Supply(R6.0-Condi), Return(R6.0-Condi)			(DGM of 0.000)		0 Btuh
				Sensible Load All Zones		**19546 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Steckbeck Residence
Climate:FL_GAINESVILLE_REGIONAL_A

, FL

3/18/2026

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**19546 Btuh**
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	**19546 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**19546 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	2464 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**4064 Btuh**
	TOTAL GAIN	**23610 Btuh**

EQUIPMENT

1. Central Unit	#	48000 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)

Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Steckbeck Residence
, FL Building Type: User

3/18/2026

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 0.20	Vinyl	0.26	N	24.0	10.4	250 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	24.0	10.4	250 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	48.0	10.4	499 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	6.0	10.4	62 Btuh
5	2, NFRC 0.20	Vinyl	0.26	E	4.0	10.4	42 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	18.0	10.4	187 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	8.0	10.4	83 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	36.0	10.4	374 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	8.0	10.4	83 Btuh
10	2, NFRC 0.20	Vinyl	0.26	W	15.0	10.4	156 Btuh
11	2, NFRC 0.20	Vinyl	0.26	S	36.0	10.4	374 Btuh
12	2, NFRC 0.20	Vinyl	0.26	W	30.0	10.4	312 Btuh
13	2, NFRC 0.20	Vinyl	0.26	W	30.0	10.4	312 Btuh
14	2, NFRC 0.20	Vinyl	0.26	N	15.0	10.4	156 Btuh
15	2, NFRC 0.20	Vinyl	0.26	N	6.0	10.4	62 Btuh
16	2, NFRC 0.20	Vinyl	0.26	N	15.0	10.4	156 Btuh
	Window Total				323.0(sqft)		3359 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	248	3.09	767 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	452	3.09	1396 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	42	3.09	129 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	102	3.09	314 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	83	3.09	256 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	137	3.09	422 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	122	3.09	376 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	133	3.09	412 Btuh
9	Frame - Wood	- Ext	(0.077)	19.0/0.0	26	3.09	80 Btuh
10	Frame - Wood	- Ext	(0.077)	19.0/0.0	100	3.09	309 Btuh
11	Frame - Wood	- Ext	(0.077)	19.0/0.0	35	3.09	108 Btuh
12	Frame - Wood	- Ext	(0.077)	19.0/0.0	114	3.09	353 Btuh
13	Frame - Wood	- Ext	(0.077)	19.0/0.0	48	3.09	148 Btuh
14	Frame - Wood	- Ext	(0.077)	19.0/0.0	46	3.09	142 Btuh
15	Frame - Wood	- Ext	(0.077)	19.0/0.0	128	3.09	395 Btuh
	Wall Total				1814(sqft)		5608 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)	24	18.4	442 Btuh
2	Insulated - Exterior,	n	(0.460)	24	18.4	442 Btuh
3	Insulated - Exterior,	n	(0.460)	24	18.4	442 Btuh
4	Insulated - Exterior,	n	(0.460)	20	18.4	368 Btuh
	Door Total			92(sqft)		1693Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Steckbeck Residence
Building Type: User

, FL

3/18/2026

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Single as/D/Metal	(0.047)	21.0/0.0	1799	1.9	3382 Btuh
2	Single as/D/Metal	(0.047)	21.0/0.0	42	1.9	79 Btuh
3	Single as/D/Metal	(0.047)	21.0/0.0	368	1.9	692 Btuh
	Ceiling Total			2209(sqft)		4152Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	200.0 ft(perim.)	47.2	9440 Btuh
2	Slab On Grade	(1.180)	0.0	26.0 ft(perim.)	47.2	1227 Btuh
3	Interior	(1.180)	0.0	368.0 sqft	0.0	0 Btuh
	Floor Total			2209 sqft		10667 Btuh
				Envelope Subtotal:		25479 Btuh

Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.27	21312	1.00	95.0	4168 Btuh
Duct load	Average sealed, R6.0, Supply(Con), Return(Con)			(DLM of 0.000)		0 Btuh
All Zones			**Sensible Subtotal All Zones**			**29647 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss		29647 Btuh
	Ventilation Sens. Heat Loss	(Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss		29647 Btuh

EQUIPMENT

1. Electric Heat Pump	#	48000 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