

Residential System Sizing Calculation

Summary

Project Title:
Wilhelm Residence

, FL

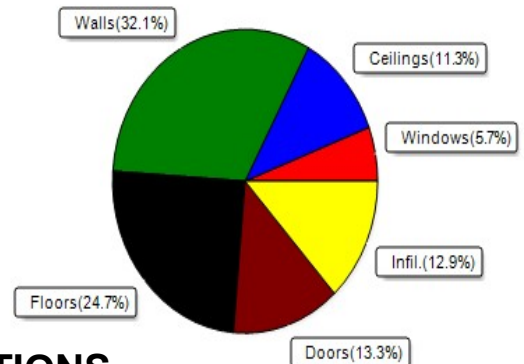
2/20/2026

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	35926	Btuh	Total cooling load calculation	28910	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	116.9	42000	Sensible (SHR = 0.75)	126.1	31500
Heat Pump + Auxiliary(0.0kW)	116.9	42000	Latent	266.8	10500
			Total (Electric Heat Pump)	145.3	42000

WINTER CALCULATIONS

Winter Heating Load (for 2160 sqft)

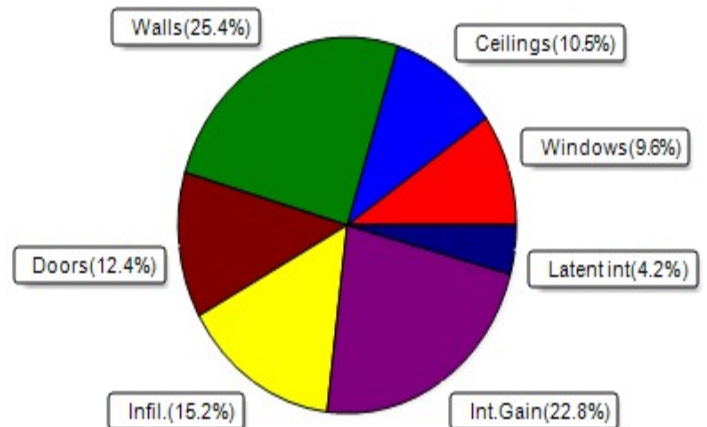
Load component	Load	
Window total	199 sqft	2064 Btuh
Wall total	2566 sqft	11517 Btuh
Door total	260 sqft	4784 Btuh
Ceiling total	2160 sqft	4060 Btuh
Floor total	See detail report	8874 Btuh
Infiltration	105 cfm	4626 Btuh
Duct loss		0 Btuh
Subtotal		35926 Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS		35926 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2160 sqft)

Load component	Load	
Window total	199 sqft	2771 Btuh
Wall total	2566 sqft	7342 Btuh
Door total	260 sqft	3588 Btuh
Ceiling total	2160 sqft	3045 Btuh
Floor total		0 Btuh
Infiltration	79 cfm	1648 Btuh
Internal gain		6580 Btuh
Duct gain		0 Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		24975 Btuh
Latent gain(ducts)		0 Btuh
Latent gain(infiltration)		2735 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		1200 Btuh
Total latent gain		3935 Btuh
TOTAL HEAT GAIN		28910 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____ 2-20-26

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Wilhelm Residence

, FL

2/20/2026

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

Window	Type*					Overhang		Window Area(sqft)			HTM		Load	
	Panes	SHGC	U	InSh	IS Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded		
1	2 NFRC	0.20, 0.26	No	No	W	1.5ft	1.3ft	32.0	0.0	32.0	9	24	775	Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	10.3f	18.0	0.0	18.0	9	9	165	Btuh
3	2 NFRC	0.20, 0.26	No	No	N	1.5ft	10.3f	13.5	0.0	13.5	9	9	123	Btuh
4	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	18.0	0.0	18.0	9	9	165	Btuh
5	2 NFRC	0.20, 0.26	No	No	S	1.5ft	10.3f	36.0	0.0	36.0	9	11	386	Btuh
6	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	18.0	18.0	0.0	9	11	165	Btuh
7	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	18.0	18.0	0.0	9	11	165	Btuh
8	2 NFRC	0.20, 0.26	No	No	W	1.5ft	0.7ft	22.5	8.7	13.8	9	24	414	Btuh
9	2 NFRC	0.20, 0.26	No	No	E	1.5ft	0.7ft	22.5	8.7	13.8	9	24	414	Btuh
Window Total										199 (sqft)		2771 Btuh		
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
				Cav/Sheath										
1	Frame - Steel - Ext	0.11	13.0/0.0			116.0	2.9	332	Btuh					
2	Frame - Steel - Ext	0.11	13.0/0.0			448.0	2.9	1282	Btuh					
3	Frame - Steel - Ext	0.11	13.0/0.0			116.0	2.9	332	Btuh					
4	Frame - Steel - Ext	0.11	13.0/0.0			382.5	2.9	1095	Btuh					
5	Frame - Steel - Ext	0.11	13.0/0.0			160.0	2.9	458	Btuh					
6	Frame - Steel - Ext	0.11	13.0/0.0			480.0	2.9	1374	Btuh					
7	Frame - Steel - Ext	0.11	13.0/0.0			116.0	2.9	332	Btuh					
8	Frame - Steel - Ext	0.11	13.0/0.0			312.0	2.9	893	Btuh					
9	Frame - Steel - Ext	0.11	13.0/0.0			217.5	2.9	622	Btuh					
10	Frame - Steel - Ext	0.11	13.0/0.0			217.5	2.9	622	Btuh					
Wall Total						2566 (sqft)		7342	Btuh					
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load				
1	Insulated - Exterior					64.0	13.8	883	Btuh					
2	Insulated - Exterior					64.0	13.8	883	Btuh					
3	Insulated - Exterior					20.0	13.8	276	Btuh					
4	Wood - Exterior					64.0	13.8	883	Btuh					
5	Insulated - Exterior					48.0	13.8	662	Btuh					
Door Total						260 (sqft)		3588	Btuh					
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load				
1	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0			600.0	1.41	846	Btuh					
2	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0			960.0	1.41	1353	Btuh					
3	SnglAsmb no airsp/DarkMetal	0.047	21.0/0.0			600.0	1.41	846	Btuh					
Ceiling Total						2160 (sqft)		3045	Btuh					
Floors	Type	U-Value		R-Value		Size		HTM		Load				
1	Slab On Grade			0.0		600 (ft-perimeter)		0.0	0	Btuh				
2	Slab On Grade			0.0		960 (ft-perimeter)		0.0	0	Btuh				
3	Slab On Grade			0.0		600 (ft-perimeter)		0.0	0	Btuh				
Floor Total						2160.0 (sqft)		0	Btuh					
Envelope Subtotal:										16747	Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Wilhelm Residence

, FL

2/20/2026

Infiltration	Type Natural	Average ACH 0.15	Volume(cuft) 31680	Wall Ratio 1	CFM= 79.1	Load 1648 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	+	Appliance 5200	Load 6580 Btuh
	Sensible Envelope Load:					24975 Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)					0 Btuh
	Sensible Load All Zones					24975 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Wilhelm Residence

, FL

2/20/2026

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	24975 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	24975 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	24975 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2735 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3935 Btuh
	TOTAL GAIN	28910 Btuh

EQUIPMENT

1. Central Unit	#	42000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Wilhelm Residence
Building Type: User

, FL

2/20/2026

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	W	32.0		10.4	333 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	18.0		10.4	187 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	13.5		10.4	140 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	18.0		10.4	187 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	36.0		10.4	374 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	18.0		10.4	187 Btuh
7	2, NFRC 0.20	Vinyl	0.26	S	18.0		10.4	187 Btuh
8	2, NFRC 0.20	Vinyl	0.26	W	22.5		10.4	234 Btuh
9	2, NFRC 0.20	Vinyl	0.26	E	22.5		10.4	234 Btuh
Window Total					198.5(sqft)			2064 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Steel	- Ext	(0.112)	13.0/0.0	116		4.49	521 Btuh
2	Frame - Steel	- Ext	(0.112)	13.0/0.0	448		4.49	2011 Btuh
3	Frame - Steel	- Ext	(0.112)	13.0/0.0	116		4.49	521 Btuh
4	Frame - Steel	- Ext	(0.112)	13.0/0.0	383		4.49	1717 Btuh
5	Frame - Steel	- Ext	(0.112)	13.0/0.0	160		4.49	718 Btuh
6	Frame - Steel	- Ext	(0.112)	13.0/0.0	480		4.49	2155 Btuh
7	Frame - Steel	- Ext	(0.112)	13.0/0.0	116		4.49	521 Btuh
8	Frame - Steel	- Ext	(0.112)	13.0/0.0	312		4.49	1401 Btuh
9	Frame - Steel	- Ext	(0.112)	13.0/0.0	218		4.49	976 Btuh
10	Frame - Steel	- Ext	(0.112)	13.0/0.0	218		4.49	976 Btuh
Wall Total					2566(sqft)			11517 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		64		18.4	1178 Btuh
2	Insulated - Exterior,	n	(0.460)		64		18.4	1178 Btuh
3	Insulated - Exterior,	n	(0.460)		20		18.4	368 Btuh
4	Wood - Exterior,	n	(0.460)		64		18.4	1178 Btuh
5	Insulated - Exterior,	n	(0.460)		48		18.4	883 Btuh
Door Total					260(sqft)			4784Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Metal		(0.047)	21.0/0.0	600		1.9	1128 Btuh
2	Single as/D/Metal		(0.047)	21.0/0.0	960		1.9	1805 Btuh
3	Single as/D/Metal		(0.047)	21.0/0.0	600		1.9	1128 Btuh
Ceiling Total					2160(sqft)			4060Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	70.0 ft(perim.)		47.2	3304 Btuh
2	Slab On Grade		(1.180)	0.0	48.0 ft(perim.)		47.2	2266 Btuh
3	Slab On Grade		(1.180)	0.0	70.0 ft(perim.)		47.2	3304 Btuh
Floor Total					2160 sqft			8874 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Wilhelm Residence
Building Type: User

, FL

2/20/2026

	Envelope Subtotal:	31300 Btuh
Infiltration	Type Natural	Wholehouse ACH Volume(cuft) Wall Ratio CFM= 0.20 31680 1.00 105.5
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con)	(DLM of 0.000) 0 Btuh
All Zones	Sensible Subtotal All Zones	35926 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	35926 Btuh 0 Btuh 35926 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	42000 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