

Residential System Sizing Calculation

Summary

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick

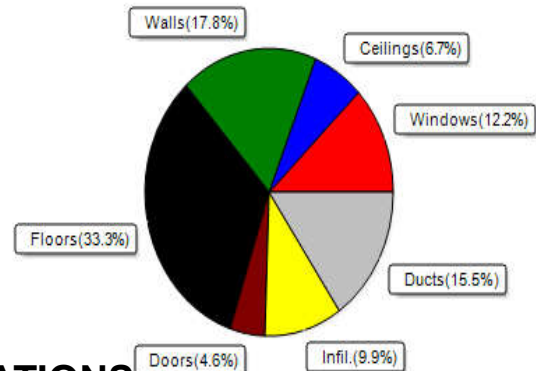
2024-08-15

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	39268	Btuh	Total cooling load calculation	31159	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	109.5	43000	Sensible (SHR = 0.75)	121.2	32250
Heat Pump + Auxiliary(0.0kW)	109.5	43000	Latent	236.4	10750
			Total (Electric Heat Pump)	138.0	43000

WINTER CALCULATIONS

Winter Heating Load (for 2456 sqft)

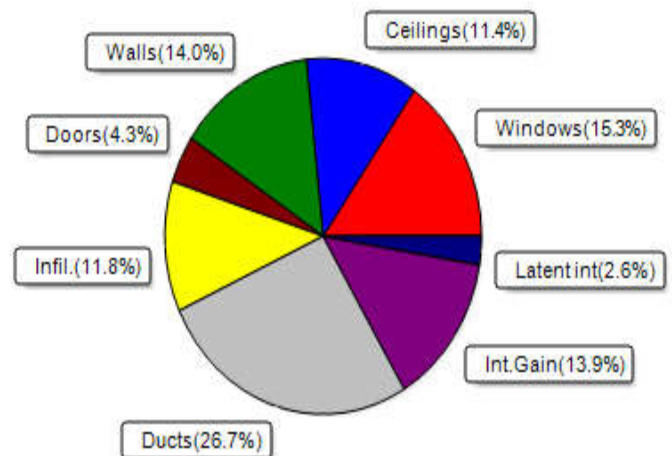
Load component	Load
Window total 400 sqft	4800 Btuh
Wall total 1972 sqft	7001 Btuh
Door total 112 sqft	1792 Btuh
Ceiling total 2598 sqft	2638 Btuh
Floor total 2456 sqft	13074 Btuh
Infiltration 89 cfm	3892 Btuh
Duct loss	6071 Btuh
Subtotal	39268 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	39268 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2456 sqft)

Load component	Load
Window total 400 sqft	4758 Btuh
Wall total 1972 sqft	4370 Btuh
Door total 112 sqft	1344 Btuh
Ceiling total 2598 sqft	3561 Btuh
Floor total	0 Btuh
Infiltration 67 cfm	1386 Btuh
Internal gain	4320 Btuh
Duct gain	6873 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	26612 Btuh
Latent gain(ducts)	1447 Btuh
Latent gain(infiltration)	2301 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	800 Btuh
Total latent gain	4547 Btuh
TOTAL HEAT GAIN	31159 Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2024-08-15

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick
Building Type: User

2024-08-15

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	Metal	0.30	N	36.0		12.0	432 Btuh
2	2, NFRC 0.20	Metal	0.30	E	13.3		12.0	160 Btuh
3	2, NFRC 0.20	Metal	0.30	N	64.0		12.0	768 Btuh
4	2, NFRC 0.20	Metal	0.30	W	48.0		12.0	576 Btuh
5	2, NFRC 0.20	Metal	0.30	N	48.0		12.0	576 Btuh
6	2, NFRC 0.20	Metal	0.30	N	32.0		12.0	384 Btuh
7	2, NFRC 0.20	Metal	0.30	N	24.0		12.0	288 Btuh
8	2, NFRC 0.20	Metal	0.30	E	18.7		12.0	224 Btuh
9	2, NFRC 0.20	Metal	0.30	E	20.0		12.0	240 Btuh
10	2, NFRC 0.20	Metal	0.30	E	3.0		12.0	36 Btuh
11	2, NFRC 0.20	Metal	0.30	S	4.0		12.0	48 Btuh
12	2, NFRC 0.20	Metal	0.30	S	16.5		12.0	198 Btuh
13	2, NFRC 0.20	Metal	0.30	S	32.0		12.0	384 Btuh
14	2, NFRC 0.20	Metal	0.30	S	16.5		12.0	198 Btuh
15	2, NFRC 0.20	Metal	0.30	W	8.0		12.0	96 Btuh
16	2, NFRC 0.20	Metal	0.30	W	16.0		12.0	192 Btuh
Window Total					400.0(sqft)			4800 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	139		3.55	494 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	17		3.55	60 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	62		3.55	220 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	453 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	94		3.55	334 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	399		3.55	1418 Btuh
9	Frame - Wood	- Adj	(0.089)	13.0/0.0	108		3.55	383 Btuh
10	Frame - Wood	- Adj	(0.089)	13.0/0.0	54		3.55	192 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	64		3.55	225 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	42		3.55	149 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	122		3.55	431 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	450		3.55	1598 Btuh
Wall Total					1972(sqft)			7001 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick
Building Type: User

2024-08-15

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior, n	(0.400)		32	16.0	512 Btuh
2	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
3	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
4	Insulated - Garage, n	(0.400)		24	16.0	384 Btuh
5	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
6	Insulated - Exterior, n	(0.400)		8	16.0	128 Btuh
	Door Total			112(sqft)		1792Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/D/Shing	(0.025)	38.0/0.0	2117	1.0	2149 Btuh
2	Sloped ce/D/Shing	(0.025)	38.0/0.0	380	1.0	386 Btuh
3	Knee wall/D/Shing	(0.025)	38.0/0.0	101	1.0	103 Btuh
	Ceiling Total			2598(sqft)		2638Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	277.0 ft(perim.)	47.2	13074 Btuh
	Floor Total			2456 sqft		13074 Btuh
	Envelope Subtotal:					29305 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.23	22841	1.00	88.7	3892 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.183)					6071 Btuh
All Zones	Sensible Subtotal All Zones					39268 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	39268 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	39268 Btuh

EQUIPMENT

1. Electric Heat Pump	#	43000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
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Building Type: User

2024-08-15

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

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick

2024-08-15

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, 0.30	No	No	N		1.5ft	0.7ft	36.0	36.0	0.0	10	11	357	Btuh
2	2 NFRC	0.20, 0.30	No	No	E		14.0f	0.0ft	13.3	13.3	0.0	10	25	132	Btuh
3	2 NFRC	0.20, 0.30	No	No	N		15.7f	0.0ft	64.0	64.0	0.0	10	11	634	Btuh
4	2 NFRC	0.20, 0.30	No	No	W		14.0f	0.0ft	48.0	48.0	0.0	10	25	476	Btuh
5	2 NFRC	0.20, 0.30	No	No	N		16.7f	0.0ft	48.0	48.0	0.0	10	11	476	Btuh
6	2 NFRC	0.20, 0.30	No	No	N		1.5ft	0.7ft	32.0	32.0	0.0	10	11	317	Btuh
7	2 NFRC	0.20, 0.30	No	No	N		1.5ft	0.7ft	24.0	24.0	0.0	10	11	238	Btuh
8	2 NFRC	0.20, 0.30	No	No	E		1.5ft	0.7ft	18.7	2.7	16.0	10	25	426	Btuh
9	2 NFRC	0.20, 0.30	No	No	E		1.5ft	0.7ft	20.0	2.3	17.7	10	25	465	Btuh
10	2 NFRC	0.20, 0.30	No	No	E		1.5ft	0.7ft	3.0	1.7	1.3	10	25	49	Btuh
11	2 NFRC	0.20, 0.30	No	No	S		1.5ft	0.7ft	4.0	0.0	4.0	10	10	40	Btuh
12	2 NFRC	0.20, 0.30	No	No	S		11.0f	0.5ft	16.5	0.0	16.5	10	10	163	Btuh
13	2 NFRC	0.20, 0.30	No	No	S		11.0f	0.5ft	32.0	0.0	32.0	10	10	317	Btuh
14	2 NFRC	0.20, 0.30	No	No	S		1.5ft	0.7ft	16.5	0.0	16.5	10	10	163	Btuh
15	2 NFRC	0.20, 0.30	No	No	W		1.5ft	0.7ft	8.0	4.6	3.4	10	25	130	Btuh
16	2 NFRC	0.20, 0.30	No	No	W		1.5ft	0.7ft	16.0	1.5	14.5	10	25	376	Btuh
Window Total									400 (sqft)					4758 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.09		13.0/0.0		81.0		2.3		183	Btuh			
2	Frame - Wood - Ext		0.09		13.0/0.0		139.2		2.3		315	Btuh			
3	Frame - Wood - Ext		0.09		13.0/0.0		30.0		2.3		68	Btuh			
4	Frame - Wood - Ext		0.09		13.0/0.0		17.0		2.3		38	Btuh			
5	Frame - Wood - Ext		0.09		13.0/0.0		62.0		2.3		140	Btuh			
6	Frame - Wood - Ext		0.09		13.0/0.0		127.5		2.3		289	Btuh			
7	Frame - Wood - Ext		0.09		13.0/0.0		94.0		2.3		213	Btuh			
8	Frame - Wood - Ext		0.09		13.0/0.0		399.3		2.3		904	Btuh			
9	Frame - Wood - Adj		0.09		13.0/0.0		108.0		1.7		182	Btuh			
10	Frame - Wood - Adj		0.09		13.0/0.0		54.0		1.7		91	Btuh			
11	Frame - Wood - Ext		0.09		13.0/0.0		63.5		2.3		144	Btuh			
12	Frame - Wood - Ext		0.09		13.0/0.0		42.0		2.3		95	Btuh			
13	Frame - Wood - Ext		0.09		13.0/0.0		120.0		2.3		272	Btuh			
14	Frame - Wood - Ext		0.09		13.0/0.0		63.0		2.3		143	Btuh			
15	Frame - Wood - Ext		0.09		13.0/0.0		121.5		2.3		275	Btuh			
16	Frame - Wood - Ext		0.09		13.0/0.0		450.0		2.3		1019	Btuh			
Wall Total							1972 (sqft)					4370 Btuh			
Doors	Type					Area (sqft)		HTM		Load					
1	Insulated - Exterior						32.0		12.0		384	Btuh			
2	Insulated - Exterior						16.0		12.0		192	Btuh			
3	Insulated - Exterior						16.0		12.0		192	Btuh			
4	Insulated - Garage						24.0		12.0		288	Btuh			
5	Insulated - Exterior						16.0		12.0		192	Btuh			
6	Insulated - Exterior						8.0		12.0		96	Btuh			
Door Total							112 (sqft)					1344 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick

Climate:FL_GAINESVILLE_REGIONAL_A

2024-08-15

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.025	38.0/0.0	2117.0	1.37	2901 Btuh
2	Vented Attic/DarkShingle	0.025	38.0/0.0	380.0	1.37	521 Btuh
3	Knee wall to attic/DarkShingle	0.025	38.0/0.0	101.0	1.37	138 Btuh
	Ceiling Total			2598 (sqft)		3561 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2456 (ft-perimeter)	0.0	0 Btuh
	Floor Total			2456.0 (sqft)		0 Btuh
	Envelope Subtotal:					14033 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.17	22841	1	66.5	1386 Btuh
Internal gain	Occupants		Btuh/occupant	Appliance		Load
	4		X 230	+	3400	4320 Btuh
	Sensible Envelope Load:					19739 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.348)	6873 Btuh
	Sensible Load All Zones					26612 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Hedrick, Carl & Amanda
279 SW Sysdney Nicole Ct
Lake City, FL

Project Title:
240903 Hedrick

Climate:FL_GAINESVILLE_REGIONAL_A

2024-08-15

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	19739 Btuh
	Sensible Duct Load	6873 Btuh
	Total Sensible Zone Loads	26612 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	26612 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2301 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1447 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4547 Btuh
	TOTAL GAIN	31159 Btuh

EQUIPMENT

1. Central Unit	#	43000 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