

Residential System Sizing Calculation

Summary

Matthew & Lyndi Karlton
NW Delaney Ct
Lake City, FL 23055

Project Title:
231256 Karlton - In Law

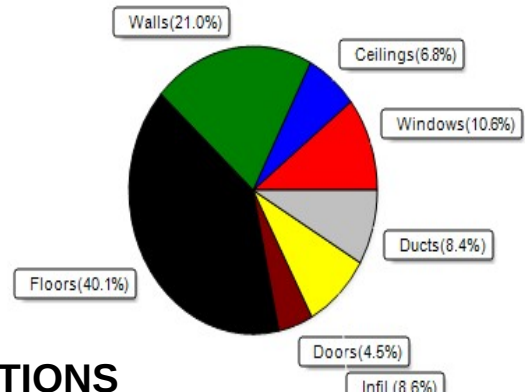
2023-10-09

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	14142	Btuh	Total cooling load calculation 11026 Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity % of calc Btuh
Total (Electric Heat Pump)	106.1	15000	Sensible (SHR = 0.75) 119.2 11250
Heat Pump + Auxiliary(0.0kW)	106.1	15000	Latent 236.3 3750
			Total (Electric Heat Pump) 136.0 15000

WINTER CALCULATIONS

Winter Heating Load (for 799 sqft)

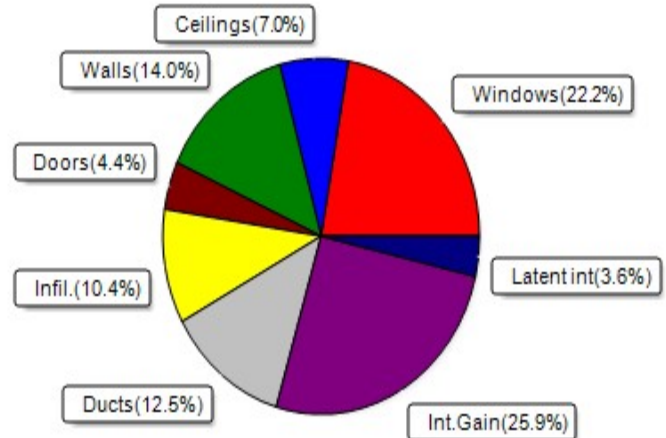
Load component	Load		
Window total	107	sqft	1498 Btuh
Wall total	928	sqft	2974 Btuh
Door total	40	sqft	640 Btuh
Ceiling total	799	sqft	963 Btuh
Floor total	799	sqft	5664 Btuh
Infiltration	28	cfm	1209 Btuh
Duct loss			1193 Btuh
Subtotal			14142 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm			0 Btuh
TOTAL HEAT LOSS			14142 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 799 sqft)

Load component	Load		
Window total	107	sqft	2452 Btuh
Wall total	928	sqft	1542 Btuh
Door total	40	sqft	480 Btuh
Ceiling total	799	sqft	770 Btuh
Floor total			0 Btuh
Infiltration	21	cfm	431 Btuh
Internal gain			2860 Btuh
Duct gain			904 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm			0 Btuh
Blower Load			0 Btuh
Total sensible gain			9439 Btuh
Latent gain(ducts)			472 Btuh
Latent gain(infiltration)			715 Btuh
Latent gain(ventilation)			0 Btuh
Latent gain(internal/occupants/other)			400 Btuh
Total latent gain			1587 Btuh
TOTAL HEAT GAIN			11026 Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2023-10-09

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Matthew & Lyndi Karlton
NW Delaney Ct
Lake City, FL 23055

Project Title:
231256 Karlton - In Law
Building Type: User

2023-10-09

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 0.25	Metal	0.35	N	33.3		14.0	467 Btuh
2	2, NFRC 0.25	Metal	0.35	E	13.3		14.0	187 Btuh
3	2, NFRC 0.25	Metal	0.35	N	36.0		14.0	504 Btuh
4	2, NFRC 0.25	Metal	0.35	E	2.0		14.0	28 Btuh
5	2, NFRC 0.25	Metal	0.35	E	4.0		14.0	56 Btuh
6	2, NFRC 0.25	Metal	0.35	W	13.3		14.0	187 Btuh
7	2, NFRC 0.25	Metal	0.35	W	5.0		14.0	70 Btuh
Window Total					107.0(sqft)			1498 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	102		3.09	315 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	39		3.09	119 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	75		3.09	232 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	221		3.09	682 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	232		3.55	824 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	260		3.09	804 Btuh
Wall Total					928(sqft)			2974 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)		7		16.0	107 Btuh
3	Insulated - Garage,	n	(0.400)		20		16.0	320 Btuh
4	Insulated - Exterior,	n	(0.400)		7		16.0	107 Btuh
Door Total					40(sqft)			640Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.241)	0.0/22.0	799		1.2	963 Btuh
Ceiling Total					799(sqft)			963Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	120.0 ft(perim.)		47.2	5664 Btuh
Floor Total					799 sqft			5664 Btuh
Envelope Subtotal:								11739 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.23	7191	1.00	27.6		1209 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.092)							1193 Btuh
All Zones	Sensible Subtotal All Zones							14142 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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NW Delaney Ct
Lake City, FL 23055

Project Title:
231256 Karlton - In Law
Building Type: User

2023-10-09

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	14142 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	14142 Btuh

EQUIPMENT

1. Electric Heat Pump	#	15000 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

Matthew & Lyndi Karlton
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Lake City, FL 23055

Project Title:
231256 Karlton - In Law

2023-10-09

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	0.25, 0.35	No	No	N		5.0ft	1.3ft	33.3	14.1	19.3	12	31	760	Btuh
2	2 NFRC	0.25, 0.35	No	No	E		12.3f	1.3ft	13.3	0.0	13.3	12	12	159	Btuh
3	2 NFRC	0.25, 0.35	No	No	N		11.0f	0.3ft	36.0	36.0	0.0	12	31	429	Btuh
4	2 NFRC	0.25, 0.35	No	No	E		1.5ft	0.5ft	2.0	0.0	2.0	12	12	24	Btuh
5	2 NFRC	0.25, 0.35	No	No	E		1.5ft	0.5ft	4.0	0.0	4.0	12	12	48	Btuh
6	2 NFRC	0.25, 0.35	No	No	W		1.5ft	1.3ft	13.3	13.3	0.0	12	14	159	Btuh
7	2 NFRC	0.25, 0.35	No	No	W		1.5ft	3.0ft	5.0	5.0	0.0	12	14	60	Btuh
	Excursion													815	Btuh
	Window Total								107 (sqft)					2452 Btuh	
Walls	Type	U-Value				R-Value		Area(sqft)			HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext						0.08		19.0/0.0		101.8		1.7	168	Btuh
2	Frame - Wood - Ext						0.08		19.0/0.0		38.5		1.7	64	Btuh
3	Frame - Wood - Ext						0.08		19.0/0.0		75.0		1.7	124	Btuh
4	Frame - Wood - Ext						0.08		19.0/0.0		220.5		1.7	365	Btuh
5	Frame - Wood - Adj						0.09		13.0/0.0		232.0		1.7	391	Btuh
6	Frame - Wood - Ext						0.08		19.0/0.0		260.0		1.7	430	Btuh
	Wall Total								928 (sqft)					1542 Btuh	
Doors	Type	U-Value				R-Value		Area (sqft)			HTM		Load		
1	Insulated - Exterior									6.7		12.0		80	Btuh
2	Insulated - Exterior									6.7		12.0		80	Btuh
3	Insulated - Garage									20.0		12.0		240	Btuh
4	Insulated - Exterior									6.7		12.0		80	Btuh
	Door Total								40 (sqft)					480 Btuh	
Ceilings	Type/Color/Surface	U-Value				R-Value		Area(sqft)			HTM		Load		
1	Unvented Attic/DarkShingle						0.241		0.0/22.0		799.0		0.96	770	Btuh
	Ceiling Total								799 (sqft)					770 Btuh	
Floors	Type	U-Value				R-Value		Size			HTM		Load		
1	Slab On Grade								0.0		799 (ft-perimeter)		0.0	0	Btuh
	Floor Total								799.0 (sqft)					0 Btuh	
	Envelope Subtotal:													5244 Btuh	
Infiltration	Type	Average ACH				Volume(cuft)		Wall Ratio		CFM=		Load			
	Natural						0.17		7191	1		20.7		431	Btuh
Internal gain	Occupants				Btuh/occupant		Appliance		Load						
	2				X 230		+		2400		2860		Btuh		
	Sensible Envelope Load:													8535 Btuh	
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.106)		904 Btuh		
	Sensible Load All Zones													9439 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

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NW Delaney Ct
Lake City, FL 23055

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
231256 Karlton - In Law

2023-10-09

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	8535 Btuh
	Sensible Duct Load	904 Btuh
	Total Sensible Zone Loads	9439 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	9439 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	715 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	472 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1587 Btuh
	TOTAL GAIN	11026 Btuh

EQUIPMENT

1. Central Unit	#	15000 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