

Residential System Sizing Calculation

Summary

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res

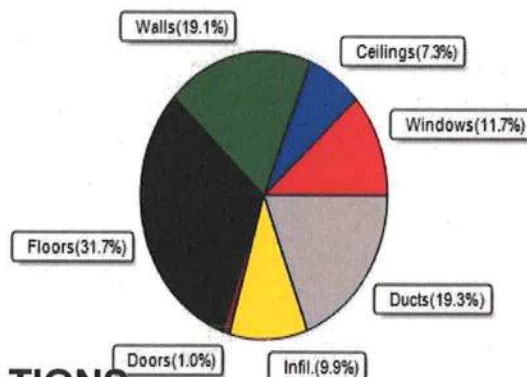
8/2/2023

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 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	36284 Btuh	Total cooling load calculation	30880 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 36284	Sensible (SHR = 0.70)	85.1 21616
Heat Pump + Auxiliary(0.0kW)	100.0 36284	Latent	168.8 9264
		Total (Electric Heat Pump)	100.0 30880

WINTER CALCULATIONS

Winter Heating Load (for 2378 sqft)

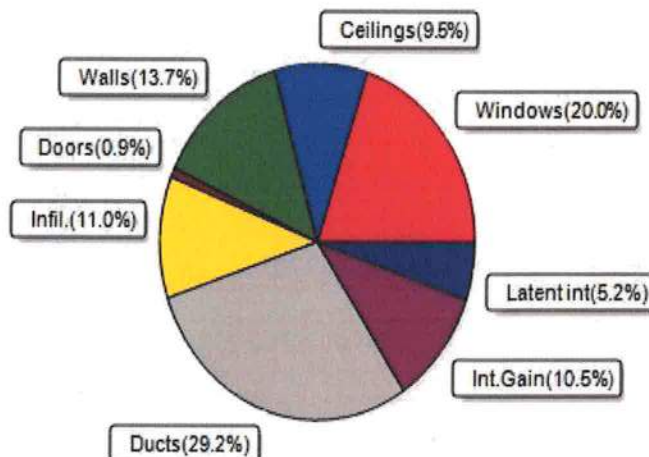
Load component		Load
Window total	295 sqft	4248 Btuh
Wall total	1954 sqft	6937 Btuh
Door total	20 sqft	368 Btuh
Ceiling total	2615 sqft	2655 Btuh
Floor total	2378 sqft	11485 Btuh
Infiltration	82 cfm	3593 Btuh
Duct loss		6998 Btuh
Subtotal		36284 Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS		36284 Btuh



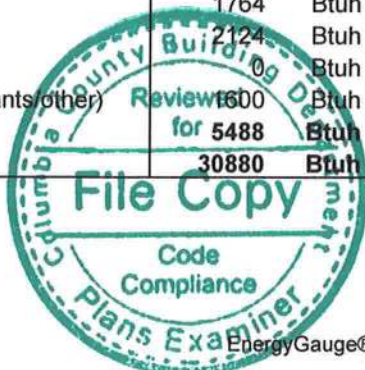
SUMMER CALCULATIONS

Summer Cooling Load (for 2378 sqft)

Load component		Load
Window total	295 sqft	6188 Btuh
Wall total	1954 sqft	4235 Btuh
Door total	20 sqft	276 Btuh
Ceiling total	2615 sqft	2920 Btuh
Floor total		0 Btuh
Infiltration	62 cfm	1280 Btuh
Internal gain		3240 Btuh
Duct gain		7252 Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		25391 Btuh
Latent gain(ducts)		1764 Btuh
Latent gain(infiltration)		2124 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		1600 Btuh
Total latent gain		5488 Btuh
TOTAL HEAT GAIN		30880 Btuh



8th Edition



EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 8 / 2 / 2023

W. C. Miller

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res
Building Type: User

8/2/2023

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	Vinyl	0.36	E	6.0		14.4	86 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	36.0		14.4	518 Btuh
3	2, NFRC 0.25	TIM	0.36	E	24.0		14.4	346 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	15.0		14.4	216 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	72.0		14.4	1037 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	24.0		14.4	346 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	72.0		14.4	1037 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
11	2, NFRC 0.25	Vinyl	0.36	S	16.0		14.4	230 Btuh
12	2, NFRC 0.25	Vinyl	0.36	S	3.0		14.4	43 Btuh
Window Total					295.0(sqft)			4248 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	282 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	97		3.55	346 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	20		3.55	71 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	56		3.55	199 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	20		3.55	71 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.55	367 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	375		3.55	1331 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.55	367 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	113		3.55	401 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	56		3.55	199 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	299		3.55	1060 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	217		3.55	769 Btuh
15	Frame - Wood	- Adj	(0.089)	13.0/0.0	205		3.55	728 Btuh
16	Frame - Wood	- Adj	(0.089)	13.0/0.0	120		3.55	426 Btuh
Wall Total					1954(sqft)			6937 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					20(sqft)			368Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/M/Shing		(0.025)	38.0/0.0	2615		1.0	2655 Btuh
Ceiling Total					2615(sqft)			2655Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	243.3 ft(perim.)		47.2	11485 Btuh
Floor Total					2378 sqft			11485 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res
Building Type: User

8/2/2023

	Envelope Subtotal:						25693 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.23	21402	1.00	82.1	3593 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.239)	6998 Btuh
All Zones	Sensible Subtotal All Zones						36284 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss		36284 Btuh
	Ventilation Sens. Heat Loss	(Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss		36284 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36284 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

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res

8/2/2023

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, 0.36	No	No	E		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31		176 Btuh
2	2 NFRC	0.25, 0.36	No	No	E		7.5ft.	1.0ft.	36.0	31.3	4.7	12	31		523 Btuh
3	2 NFRC	0.25, 0.36	No	No	E		11.5f	1.0ft.	24.0	24.0	0.0	12	31		290 Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	3.0ft.	15.0	0.0	15.0	12	31		464 Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	12	12		73 Btuh
6	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31		450 Btuh
7	2 NFRC	0.25, 0.36	No	No	W		12.5f	1.0ft.	72.0	72.0	0.0	12	31		871 Btuh
8	2 NFRC	0.25, 0.36	No	No	N		12.5f	1.0ft.	24.0	0.0	24.0	12	12		290 Btuh
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	72.0	2.9	69.1	12	31		2172 Btuh
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31		176 Btuh
11	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	16.0	16.0	0.0	12	14		194 Btuh
12	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	3.0	3.0	0.0	12	14		36 Btuh
	Excursion														471 Btuh
	Window Total								295 (sqft)						6188 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load		
								Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.0	79.5		2.3		180 Btuh		
2	Frame - Wood - Ext						0.09	13.0/0.0	18.0		2.3		41 Btuh		
3	Frame - Wood - Ext						0.09	13.0/0.0	97.3		2.3		220 Btuh		
4	Frame - Wood - Ext						0.09	13.0/0.0	20.0		2.3		45 Btuh		
5	Frame - Wood - Ext						0.09	13.0/0.0	56.0		2.3		127 Btuh		
6	Frame - Wood - Ext						0.09	13.0/0.0	20.0		2.3		45 Btuh		
7	Frame - Wood - Ext						0.09	13.0/0.0	103.5		2.3		234 Btuh		
8	Frame - Wood - Ext						0.09	13.0/0.0	375.0		2.3		849 Btuh		
9	Frame - Wood - Ext						0.09	13.0/0.0	103.5		2.3		234 Btuh		
10	Frame - Wood - Ext						0.09	13.0/0.0	72.0		2.3		163 Btuh		
11	Frame - Wood - Ext						0.09	13.0/0.0	113.0		2.3		256 Btuh		
12	Frame - Wood - Ext						0.09	13.0/0.0	56.0		2.3		127 Btuh		
13	Frame - Wood - Ext						0.09	13.0/0.0	298.7		2.3		676 Btuh		
14	Frame - Wood - Ext						0.09	13.0/0.0	216.5		2.3		490 Btuh		
15	Frame - Wood - Adj						0.09	13.0/0.0	205.0		1.7		346 Btuh		
16	Frame - Wood - Adj						0.09	13.0/0.0	120.0		1.7		202 Btuh		
	Wall Total								1954 (sqft)						4235 Btuh
Doors	Type						Area (sqft)			HTM		Load			
1	Insulated - Garage						20.0			13.8		276 Btuh			
	Door Total						20 (sqft)					276 Btuh			
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load		
1	Vented Attic/Med/Shingle/RB						0.025	38.0/0.0	2615.0		1.12		2920 Btuh		
	Ceiling Total						2615 (sqft)					2920 Btuh			
Floors	Type						R-Value		Size		HTM		Load		
1	Slab On Grade						0.0		2378 (ft-perimeter)		0.0		0 Btuh		
	Floor Total								2378.0 (sqft)				0 Btuh		
	Envelope Subtotal:													13620 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res

Climate: FL_GAINESVILLE_REGIONAL_A

8/2/2023

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 21402	Wall Ratio 1	CFM= 61.5	Load 1280 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1400	Load 3240 Btuh
	Sensible Envelope Load:					18140 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.400)					7252 Btuh
	Sensible Load All Zones					25391 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Charles & Nastoshia Miller
452 SW Mossy Oak Way
Lake City, FL 32024

Project Title:
Miller Res

Climate: FL_GAINESVILLE_REGIONAL_A

8/2/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18140 Btuh
	Sensible Duct Load	7252 Btuh
	Total Sensible Zone Loads	25391 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	25391 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2124 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1764 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5488 Btuh
	TOTAL GAIN	30880 Btuh

EQUIPMENT

1. Central Unit	#	30880 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