

Residential System Sizing Calculation

Summary

Project Title:
Lavender & Murry Residence

, FL

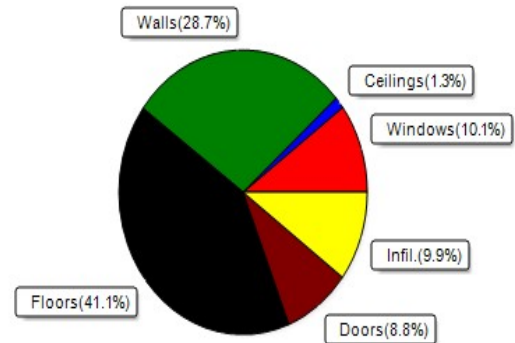
5/24/2022

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	35918	Btuh	Total cooling load calculation	24977	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	133.6	48000	Sensible (SHR = 0.85)	191.8	40800
Heat Pump + Auxiliary(0.0kW)	133.6	48000	Latent	194.2	7200
			Total (Electric Heat Pump)	192.2	48000

WINTER CALCULATIONS

Winter Heating Load (for 3021 sqft)

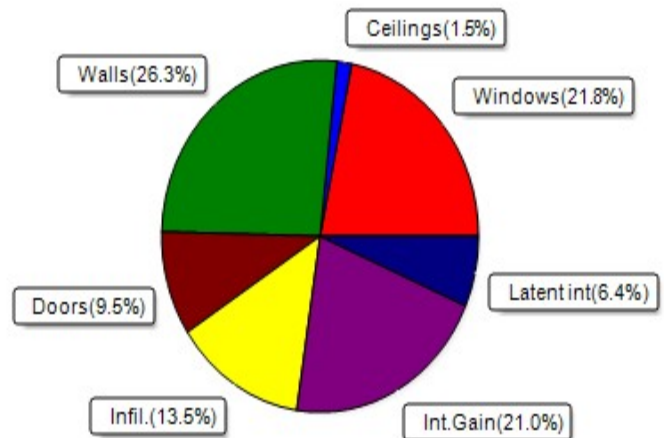
Load component		Load	
Window total	350 sqft	3635	Btuh
Wall total	2901 sqft	10300	Btuh
Door total	198 sqft	3164	Btuh
Ceiling total	3021 sqft	481	Btuh
Floor total	3021 sqft	14774	Btuh
Infiltration	81 cfm	3565	Btuh
Duct loss		0	Btuh
Subtotal		35918	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		35918	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3021 sqft)

Load component		Load	
Window total	350 sqft	5436	Btuh
Wall total	2901 sqft	6566	Btuh
Door total	198 sqft	2373	Btuh
Ceiling total	3021 sqft	385	Btuh
Floor total		0	Btuh
Infiltration	61 cfm	1270	Btuh
Internal gain		5240	Btuh
Duct gain		0	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		21270	Btuh
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		2107	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		3707	Btuh
TOTAL HEAT GAIN		24977	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

5-24-22

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Lavender & Murry Residence

, FL

5/24/2022

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

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	N		1.5ft.	2.3ft.	36.0	0.0	36.0	9	9	329	Btuh
2	2 NFRC	0.20, 0.26	No	No	N		21.3f	2.3ft.	20.0	0.0	20.0	9	9	183	Btuh
3	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	2.3ft.	36.0	0.0	36.0	9	24	872	Btuh
4	2 NFRC	0.20, 0.26	No	No	N		1.5ft.	2.3ft.	54.0	0.0	54.0	9	9	494	Btuh
5	2 NFRC	0.20, 0.26	No	No	N		1.5ft.	2.3ft.	15.0	0.0	15.0	9	9	137	Btuh
6	2 NFRC	0.20, 0.26	No	No	E		1.5ft.	2.3ft.	8.0	0.0	8.0	9	24	194	Btuh
7	2 NFRC	0.20, 0.26	No	No	E		1.5ft.	2.3ft.	20.0	0.0	20.0	9	24	484	Btuh
8	2 NFRC	0.20, 0.26	No	No	E		1.5ft.	2.3ft.	4.5	0.0	4.5	9	24	109	Btuh
9	2 NFRC	0.20, 0.26	No	No	E		1.5ft.	2.3ft.	9.0	0.0	9.0	9	24	218	Btuh
10	2 NFRC	0.20, 0.26	No	No	S		1.5ft.	2.3ft.	10.0	10.0	0.0	9	11	91	Btuh
11	2 NFRC	0.20, 0.26	No	No	S		9.5ft.	2.3ft.	60.0	60.0	0.0	9	11	549	Btuh
12	2 NFRC	0.20, 0.26	No	No	S		1.5ft.	2.3ft.	10.0	10.0	0.0	9	11	91	Btuh
13	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	2.3ft.	10.0	0.0	10.0	9	24	242	Btuh
14	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	2.3ft.	54.0	0.0	54.0	9	24	1308	Btuh
15	2 NFRC	0.20, 0.26	No	No	W		1.5ft.	2.3ft.	3.0	0.0	3.0	9	24	73	Btuh
	Excursion													61	Btuh
	Window Total								350 (sqft)					5436 Btuh	
Walls	Type					U-Value	R-Value		Area(sqft)		HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext					0.09	13.0/0.0		150.7		2.3		341 Btuh		
2	Frame - Wood - Ext					0.09	13.0/0.0		138.9		2.3		314 Btuh		
3	Frame - Wood - Ext					0.09	13.0/0.0		91.7		2.3		207 Btuh		
4	Frame - Wood - Ext					0.09	13.0/0.0		26.7		2.3		60 Btuh		
5	Frame - Wood - Ext					0.09	13.0/0.0		115.0		2.3		260 Btuh		
6	Frame - Wood - Ext					0.09	13.0/0.0		392.3		2.3		888 Btuh		
7	Frame - Wood - Ext					0.09	13.0/0.0		171.0		2.3		387 Btuh		
8	Frame - Wood - Ext					0.09	13.0/0.0		310.2		2.3		702 Btuh		
9	Frame - Wood - Ext					0.09	13.0/0.0		506.7		2.3		1147 Btuh		
10	Frame - Wood - Ext					0.09	13.0/0.0		116.7		2.3		264 Btuh		
11	Frame - Wood - Ext					0.09	13.0/0.0		65.0		2.3		147 Btuh		
12	Frame - Wood - Ext					0.09	13.0/0.0		263.3		2.3		596 Btuh		
13	Frame - Wood - Ext					0.09	13.0/0.0		65.0		2.3		147 Btuh		
14	Frame - Wood - Ext					0.09	13.0/0.0		46.7		2.3		106 Btuh		
15	Frame - Wood - Ext					0.09	13.0/0.0		441.3		2.3		999 Btuh		
	Wall Total								2901 (sqft)					6566 Btuh	
Doors	Type								Area (sqft)		HTM		Load		
1	Insulated - Exterior								66.7		12.0		800 Btuh		
2	Insulated - Exterior								17.8		12.0		213 Btuh		
3	Insulated - Exterior								93.3		12.0		1120 Btuh		
4	Insulated - Exterior								20.0		12.0		240 Btuh		
	Door Total								198 (sqft)					2373 Btuh	
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)		HTM		Load		
1	Unvented Attic/DarkShingle					0.032	30.0/30.0		3021.0		0.13		385 Btuh		
	Ceiling Total								3021 (sqft)					385 Btuh	
Floors	Type						R-Value		Size		HTM		Load		
1	Slab On Grade						0.0		3021 (ft-perimeter)		0.0		0 Btuh		
	Floor Total								3021.0 (sqft)					0 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lavender & Murry Residence

, FL

5/24/2022

	Envelope Subtotal:					14760 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	30210	1	61.1	1270 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		8	X 230	+	3400	5240 Btuh
	Sensible Envelope Load:					21270 Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)					0 Btuh
	Sensible Load All Zones					21270 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lavender & Murry Residence

, FL

5/24/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	21270 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	21270 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21270 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2107 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	3707 Btuh
	TOTAL GAIN	24977 Btuh

EQUIPMENT

1. Central Unit	#	48000 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(1/2))
(Ornt - compass orientation)



Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Lavender & Murry Residence
Building Type: User

, FL

5/24/2022

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

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	36.0		10.4	374 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	20.0		10.4	208 Btuh
3	2, NFRC 0.20	Vinyl	0.26	W	36.0		10.4	374 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	54.0		10.4	562 Btuh
5	2, NFRC 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	8.0		10.4	83 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	20.0		10.4	208 Btuh
8	2, NFRC 0.20	Vinyl	0.26	E	4.5		10.4	47 Btuh
9	2, NFRC 0.20	Vinyl	0.26	E	9.0		10.4	94 Btuh
10	2, NFRC 0.20	Vinyl	0.26	S	10.0		10.4	104 Btuh
11	2, NFRC 0.20	Vinyl	0.26	S	60.0		10.4	624 Btuh
12	2, NFRC 0.20	Vinyl	0.26	S	10.0		10.4	104 Btuh
13	2, NFRC 0.20	Vinyl	0.26	W	10.0		10.4	104 Btuh
14	2, NFRC 0.20	Vinyl	0.26	W	54.0		10.4	562 Btuh
15	2, NFRC 0.20	Vinyl	0.26	W	3.0		10.4	31 Btuh
Window Total					349.5(sqft)			3635 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	151		3.55	535 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	139		3.55	493 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	325 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	95 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	115		3.55	408 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	392		3.55	1393 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	171		3.55	607 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	310		3.55	1101 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	507		3.55	1799 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	117		3.55	414 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	231 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	263		3.55	935 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	231 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	47		3.55	166 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	441		3.55	1567 Btuh
Wall Total					2901(sqft)			10300 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		67		16.0	1067 Btuh
2	Insulated - Exterior, n		(0.400)		18		16.0	284 Btuh
3	Insulated - Exterior, n		(0.400)		93		16.0	1493 Btuh
4	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
Door Total					198(sqft)			3164Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Lavender & Murry Residence
Building Type: User

, FL

5/24/2022

Ceilings 1	Type/Color/Surface Unvent Attic/D/Shing Ceiling Total	Ueff. (0.032)	R-Value 30.0/30.0	Area X 3021 3021(sqft)	HTM= 0.2	Load 481 Btuh 481Btuh
Floors 1	Type Slab On Grade Floor Total	Ueff. (1.180)	R-Value 0.0	Size X 313.0 ft(perim.) 3021 sqft	HTM= 47.2	Load 14774 Btuh 14774 Btuh
Envelope Subtotal:						32354 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.16	Volume(cuft) 30210	Wall Ratio 1.00	CFM= 81.4	3565 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)					0 Btuh
All Zones	Sensible Subtotal All Zones					35918 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	35918 Btuh 0 Btuh 35918 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	48000 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

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 78

The lower the EnergyPerformance Index, the more efficient the home.

„FL,

1. New construction or existing	New (From Plans)	10. Wall Types(3448.3 sqft.)	Insulation	Area
2. Single family or multiple family	Detached	a. Frame - Wood, Exterior	R=13.0	3448.30 ft ²
3. Number of units, if multiple family	1	b. N/A	R=	ft ²
4. Number of Bedrooms	4	c. N/A	R=	ft ²
5. Is this a worst case?	No	d. N/A	R=	ft ²
6. Conditioned floor area above grade (ft ²)	3021	11. Ceiling Types(3021.0 sqft.)	Insulation	Area
Conditioned floor area below grade (ft ²)	0	a. Roof Deck (Unvented)	R=30.0	3021.00 ft ²
7. Windows**	Description	b. N/A	R=	ft ²
a. U-Factor:	Dbl, U=0.26	c. N/A	R=	ft ²
SHGC:	SHGC=0.20	12. Ducts, location & insulation level	R	ft ²
b. U-Factor:	N/A	a. a. Sup: Main, Ret: Main, AH: Garage	6	604.2
SHGC:		b.		
c. U-Factor:	N/A	c.		
SHGC:		13. Cooling Systems	kBtu/hr	Efficiency
Area Weighted Average Overhang Depth:	4.008 ft	a. Central Unit	48.0	SEER:15.00
Area Weighted Average SHGC:	0.200	14. Heating Systems	kBtu/hr	Efficiency
8. Skylights	Description	a. Electric Heat Pump	48.0	HSPF:8.50
U-Factor:(AVG)	N/A	15. Hot Water Systems		
SHGC(AVG):	N/A	a. Electric	Cap: 50 gallons	
9. Floor Types	Insulation		EF: 0.920	
a. Slab-On-Grade Edge Insulation	R= 0.0	b. Conservation features		
b. N/A	R=			
c. N/A	R=	16. Credits		None
				CF, Pstat

I certify that this home has complied with the Florida Energy Efficiency Code for Building Construction through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL Display Card will be completed based on installed Code compliant features.

Builder Signature: _____ Date: _____

Address of New Home: _____ City/FL Zip: „FL,



*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida Energy Rating. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

**Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.