

Residential System Sizing Calculation

Summary

Project Title:
Lot 50 Emerald Cove

, FL

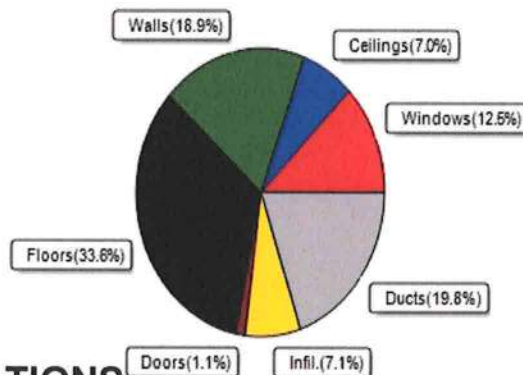
5/3/2022

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	32057 Btuh	Total cooling load calculation	24363 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 32057	Sensible (SHR = 0.70)	85.9 17009
Heat Pump + Auxiliary(0.0kW)	100.0 32057	Latent	159.5 7290
		Total (Electric Heat Pump)	99.7 24299

WINTER CALCULATIONS

Winter Heating Load (for 2105 sqft)

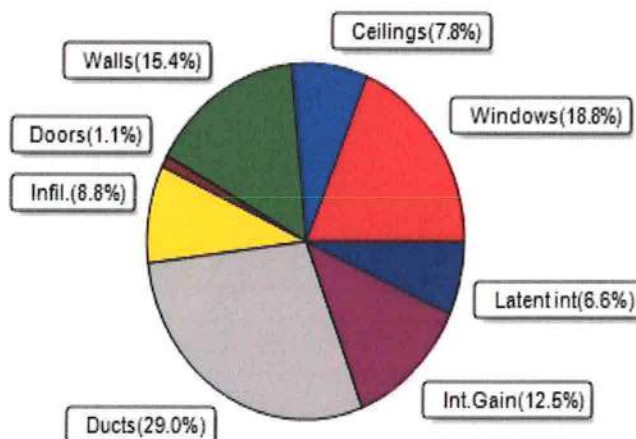
Load component		Load	
Window total	278 sqft	4003 Btuh	
Wall total	1704 sqft	6048 Btuh	
Door total	20 sqft	368 Btuh	
Ceiling total	2210 sqft	2244 Btuh	
Floor total	2105 sqft	10777 Btuh	
Infiltration	52 cfm	2272 Btuh	
Duct loss		6345 Btuh	
Subtotal		32057 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		32057 Btuh	



SUMMER CALCULATIONS

Summer Cooling Load (for 2105 sqft)

Load component		Load	
Window total	278 sqft	4580 Btuh	
Wall total	1704 sqft	3753 Btuh	
Door total	20 sqft	276 Btuh	
Ceiling total	2210 sqft	1907 Btuh	
Floor total		0 Btuh	
Infiltration	39 cfm	809 Btuh	
Internal gain		3040 Btuh	
Duct gain		5426 Btuh	
Sens. Ventilation	0 cfm	0 Btuh	
Blower Load		0 Btuh	
Total sensible gain		19792 Btuh	
Latent gain(ducts)		1629 Btuh	
Latent gain(infiltration)		1343 Btuh	
Latent gain(ventilation)		0 Btuh	
Latent gain(internal/occupants/other)		1600 Btuh	
Total latent gain		4572 Btuh	
TOTAL HEAT GAIN		24363 Btuh	



8th Edition



EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 5 / 3 / 2022

Will C. [Signature]

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Lot 50 Emerald Cove
Building Type: User

, FL

5/3/2022

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 0.25	Vinyl	0.36	S	16.0		14.4	230 Btuh
2	2, NFRC 0.25	TIM	0.36	S	15.0		14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	36.0		14.4	518 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	15.0		14.4	216 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
7	2, NFRC 0.25	TIM	0.36	W	20.0		14.4	288 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	60.0		14.4	864 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
Window Total					278.0(sqft)			4003 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	89		3.55	316 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	75		3.55	266 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	87		3.55	309 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	178		3.55	632 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	333		3.55	1182 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	114		3.55	405 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	69		3.55	245 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	320 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	70		3.55	249 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	95		3.55	337 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	102		3.55	362 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	321		3.55	1138 Btuh
Wall Total					1704(sqft)			6048 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	Vented Attic/L/Shing		(0.025)	38.0/0.0	2210		1.0	2244 Btuh
Ceiling Total					2210(sqft)			2244Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	228.3 ft(perim.)		47.2	10777 Btuh
Floor Total					2105 sqft			10777 Btuh
Envelope Subtotal:								23440 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	18945	1.00	51.9		2272 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Lot 50 Emerald Cove
Building Type: User

, FL

5/3/2022

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.247)	6345 Btuh
All Zones	Sensible Subtotal All Zones	32057 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	32057 Btuh 0 Btuh 32057 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	32057 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

Project Title:
Lot 50 Emerald Cove

, FL

5/3/2022

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	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	16.0	16.0	0.0	12	14	194	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		4.0ft.	1.0ft.	15.0	15.0	0.0	12	14	181	Btuh
3	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	36.0	36.0	0.0	12	14	436	Btuh
4	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450	Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	45.0	0.0	45.0	12	12	544	Btuh
7	2 NFRC	0.25, 0.36	No	No	W		6.0ft.	1.0ft.	20.0	11.9	8.1	12	31	394	Btuh
8	2 NFRC	0.25, 0.36	No	No	N		10.5f	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363	Btuh
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh
11	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176	Btuh
	Excursion													65	Btuh
	Window Total								278 (sqft)					4580 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)			HTM		Load				
1	Frame - Wood - Ext		0.09		13.0/0.0			89.0		2.3		201	Btuh		
2	Frame - Wood - Ext		0.09		13.0/0.0			75.0		2.3		170	Btuh		
3	Frame - Wood - Ext		0.09		13.0/0.0			87.0		2.3		197	Btuh		
4	Frame - Wood - Adj		0.09		13.0/0.0			178.0		1.7		300	Btuh		
5	Frame - Wood - Ext		0.09		13.0/0.0			333.0		2.3		754	Btuh		
6	Frame - Wood - Ext		0.09		13.0/0.0			114.0		2.3		258	Btuh		
7	Frame - Wood - Ext		0.09		13.0/0.0			69.0		2.3		156	Btuh		
8	Frame - Wood - Ext		0.09		13.0/0.0			90.0		2.3		204	Btuh		
9	Frame - Wood - Ext		0.09		13.0/0.0			70.0		2.3		158	Btuh		
10	Frame - Wood - Ext		0.09		13.0/0.0			95.0		2.3		215	Btuh		
11	Frame - Wood - Ext		0.09		13.0/0.0			81.0		2.3		183	Btuh		
12	Frame - Wood - Ext		0.09		13.0/0.0			102.0		2.3		231	Btuh		
13	Frame - Wood - Ext		0.09		13.0/0.0			320.5		2.3		725	Btuh		
	Wall Total								1704 (sqft)					3753 Btuh	
Doors	Type	U-Value		R-Value		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 AtticLight/Shingle/RB		0.025		38.0/0.0			2210.0		0.86		1907	Btuh		
	Ceiling Total								2210 (sqft)					1907 Btuh	
Floors	Type	U-Value		R-Value		Size			HTM		Load				
1	Slab On Grade				0.0			2105 (ft-perimeter)		0.0		0	Btuh		
	Floor Total								2105.0 (sqft)					0 Btuh	
	Envelope Subtotal:													10516 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 50 Emerald Cove

, FL

5/3/2022

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 18945	Wall Ratio 1	CFM= 38.9	Load 809 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
	Sensible Envelope Load:					14365 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.378)					5426 Btuh
	Sensible Load All Zones					19792 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 50 Emerald Cove

, FL

5/3/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14365 Btuh
	Sensible Duct Load	5426 Btuh
	Total Sensible Zone Loads	19792 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19792 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1343 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1629 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4572 Btuh
	TOTAL GAIN	24363 Btuh

EQUIPMENT

1. Central Unit	#	24299 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