

Residential System Sizing Calculation

Summary

Project Title:
Lot 31 Jewel Lake II

Lake City, FL 32025

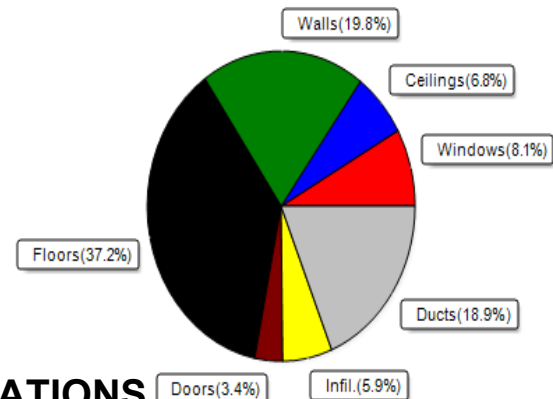
3/8/2022

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	21869 Btuh	Total cooling load calculation	18416 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 21869	Sensible (SHR = 0.70)	83.2 12477
Heat Pump + Auxiliary(0.0kW)	100.0 21869	Latent	156.2 5347
		Total (Electric Heat Pump)	96.8 17824

WINTER CALCULATIONS

Winter Heating Load (for 1398 sqft)

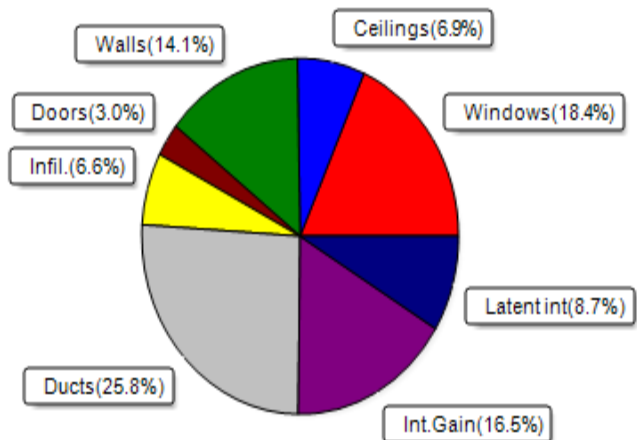
Load component		Load	
Window total	123 sqft	1776	Btuh
Wall total	1217 sqft	4322	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1468 sqft	1490	Btuh
Floor total	1398 sqft	8142	Btuh
Infiltration	29 cfm	1280	Btuh
Duct loss		4123	Btuh
Subtotal		21869	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		21869	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1398 sqft)

Load component		Load	
Window total	123 sqft	3388	Btuh
Wall total	1217 sqft	2599	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1468 sqft	1267	Btuh
Floor total		0	Btuh
Infiltration	22 cfm	456	Btuh
Internal gain		3040	Btuh
Duct gain		3690	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		14992	Btuh
Latent gain(ducts)		1067	Btuh
Latent gain(infiltration)		756	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		3424	Btuh
TOTAL HEAT GAIN		18416	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____ 3 / 8 / 2022

Wendy C. Smith

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32025

Project Title:
Lot 31 Jewel Lake II
Building Type: User

3/8/2022

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	E	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
4	2, NFRC 0.25	Metal	0.36	W	33.3		14.4	480 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
Window Total					123.3(sqft)			1776 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	65		3.55	230 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	114 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	14		3.55	50 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	131		3.55	464 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	140		3.55	497 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	222		3.55	789 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	229		3.55	812 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	385		3.55	1367 Btuh
Wall Total					1217(sqft)			4322 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1468		1.0	1490 Btuh
Ceiling Total					1468(sqft)			1490Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	172.5 ft(perim.)		47.2	8142 Btuh
Floor Total					1398 sqft			8142 Btuh
Envelope Subtotal:								16466 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	11184	1.00	29.2		1280 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.232)							4123 Btuh
All Zones	Sensible Subtotal All Zones							21869 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32025

Project Title:
Lot 31 Jewel Lake II
Building Type: User

3/8/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	21869 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	21869 Btuh

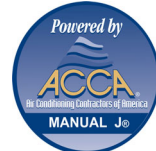
EQUIPMENT

1. Electric Heat Pump	#	21869 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 31 Jewel Lake II

Lake City, FL 32025

3/8/2022

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	E		5.5ft.	1.0ft.	30.0	21.4	8.6	12	31	525	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181	Btuh
3	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
4	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	33.3	1.2	32.1	12	31	1008	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181	Btuh
	Excursion													591	Btuh
	Window Total								123 (sqft)					3388	Btuh
Walls	Type					U-Value	R-Value		Area(sqft)			HTM		Load	
							Cav/Sheath								
1	Frame - Wood - Ext					0.09	13.0/0.0		64.7			2.3		146	Btuh
2	Frame - Wood - Ext					0.09	13.0/0.0		32.0			2.3		72	Btuh
3	Frame - Wood - Ext					0.09	13.0/0.0		14.0			2.3		32	Btuh
4	Frame - Wood - Adj					0.09	13.0/0.0		130.7			1.7		220	Btuh
5	Frame - Wood - Adj					0.09	13.0/0.0		140.0			1.7		236	Btuh
6	Frame - Wood - Ext					0.09	13.0/0.0		222.3			2.3		503	Btuh
7	Frame - Wood - Ext					0.09	13.0/0.0		228.7			2.3		518	Btuh
8	Frame - Wood - Ext					0.09	13.0/0.0		385.0			2.3		871	Btuh
	Wall Total								1217 (sqft)					2599	Btuh
Doors	Type								Area (sqft)			HTM		Load	
1	Insulated - Exterior								20.0			13.8		276	Btuh
2	Insulated - Garage								20.0			13.8		276	Btuh
	Door Total								40 (sqft)					552	Btuh
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)			HTM		Load	
1	Vented Attic/Light/Shingle/RB					0.025	38.0/0.0		1468.0			0.86		1267	Btuh
	Ceiling Total								1468 (sqft)					1267	Btuh
Floors	Type						R-Value		Size			HTM		Load	
1	Slab On Grade						0.0		1398 (ft-perimeter)			0.0		0	Btuh
	Floor Total								1398.0 (sqft)					0	Btuh
	Envelope Subtotal:													7806 Btuh	
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
Natural					0.12		11184		1		21.9		456 Btuh		
Internal gain					Occupants		Btuh/occupant				Appliance		Load		
					8		X 230		+		1200		3040 Btuh		
	Sensible Envelope Load:													11302 Btuh	
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.326)		3690 Btuh		
	Sensible Load All Zones													14992 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 31 Jewel Lake II

Lake City, FL 32025

3/8/2022

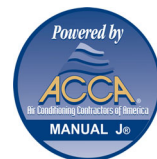
WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11302 Btuh
	Sensible Duct Load	3690 Btuh
	Total Sensible Zone Loads	14992 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14992 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	756 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1067 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3424 Btuh
	TOTAL GAIN	18416 Btuh

EQUIPMENT

1. Central Unit	#	17824 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