

Residential System Sizing Calculation

Summary

Peter & Anna Lev

Project Title:
Lot 9 Creek Run Plantation

Lake City, FL 32055

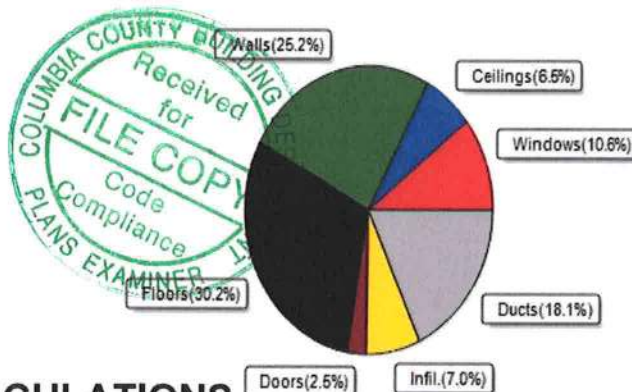
2/5/2021

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	29510 Btuh	Total cooling load calculation	20549 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 29510	Sensible (SHR = 0.70)	85.9 14385
Heat Pump + Auxiliary(0.0kW)	100.0 29510	Latent	162.1 6165
		Total (Electric Heat Pump)	100.0 20549

WINTER CALCULATIONS

Winter Heating Load (for 1807 sqft)

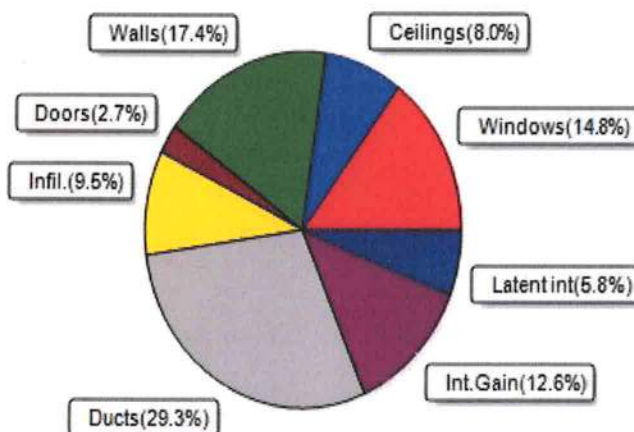
Load component		Load	
Window total	216 sqft	3115	Btuh
Wall total	1495 sqft	7434	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1897 sqft	1926	Btuh
Floor total	1807 sqft	8905	Btuh
Infiltration	47 cfm	2051	Btuh
Duct loss		5342	Btuh
Subtotal		29510	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		29510	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1807 sqft)

Load component		Load	
Window total	216 sqft	3033	Btuh
Wall total	1495 sqft	3580	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1897 sqft	1637	Btuh
Floor total		0	Btuh
Infiltration	35 cfm	731	Btuh
Internal gain		2580	Btuh
Duct gain		4635	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16747	Btuh
Latent gain(ducts)		1390	Btuh
Latent gain(infiltration)		1213	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3802	Btuh
TOTAL HEAT GAIN		20549	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

[Signature]
2/5/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Peter & Anna Lev

Project Title:

Lot 9 Creek Run Plantation

Lake City, FL 32055

Building Type: User

2/5/2021

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	30.0		14.4	432 Btuh
2	2, NFRC 0.25	TIM	0.36	S	13.3		14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	25.0		14.4	360 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	9.0		14.4	130 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	60.0		14.4	864 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	9.0		14.4	130 Btuh
9	2, NFRC 0.25	TIM	0.36	N	40.0		14.4	576 Btuh
10	2, NFRC 0.25	Vinyl	0.36	W	4.0		14.4	58 Btuh
Window Total					216.3(sqft)			3115 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	82		5.26	432 Btuh
2	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	200		5.26	1054 Btuh
3	Frame - Wood - Adj		(0.089)	13.0/0.0	48		3.55	172 Btuh
4	Frame - Wood - Adj		(0.089)	13.0/0.0	205		3.55	729 Btuh
5	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	198		5.26	1041 Btuh
6	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	470		5.26	2473 Btuh
7	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	292		5.26	1534 Btuh
Wall Total					1495(sqft)			7434 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/Metal		(0.025)	38.0/0.0	1897		1.0	1926 Btuh
Ceiling Total					1897(sqft)			1926Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	188.7 ft(perim.)		47.2	8905 Btuh
Floor Total					1807 sqft			8905 Btuh
Envelope Subtotal:								22116 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	16859	1.00	46.8		2051 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.221)							5342 Btuh
All Zones	Sensible Subtotal All Zones							29510 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Peter & Anna Lev

Project Title:

Lot 9 Creek Run Plantation

Lake City, FL 32055

Building Type: User

2/5/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	29510 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	29510 Btuh

EQUIPMENT

1. Electric Heat Pump	#	29510 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

Peter & Anna Lev

Project Title:

Lot 9 Creek Run Plantation

Lake City, FL 32055

2/5/2021

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.	30.0	30.0	0.0	12	14	363	Btuh	
2	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.0ft.	13.3	13.3	0.0	12	14	161	Btuh	
3	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.0ft.	25.0	25.0	0.0	12	14	302	Btuh	
4	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.0ft.	9.0	9.0	0.0	12	14	109	Btuh	
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	20.0	1.0	19.0	12	31	600	Btuh	
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	60.0	0.0	60.0	12	12	726	Btuh	
7	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73	Btuh	
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	9.0	0.0	9.0	12	12	109	Btuh	
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	40.0	0.0	40.0	12	12	484	Btuh	
10	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	4.0	1.0	3.0	12	31	105	Btuh	
	Window Total								216 (sqft)					3033		Btuh
Walls	Type					U-Value	R-Value		Area(sqft)		HTM		Load			
							Cav/Sheath									
1	Concrete Blk,Hollow- Ext					0.13	5.0/0.0		82.0		2.5		208		Btuh	
2	Concrete Blk,Hollow- Ext					0.13	5.0/0.0		200.2		2.5		508		Btuh	
3	Frame - Wood - Adj					0.09	13.0/0.0		48.4		1.7		82		Btuh	
4	Frame - Wood - Adj					0.09	13.0/0.0		205.3		1.7		346		Btuh	
5	Concrete Blk,Hollow- Ext					0.13	5.0/0.0		197.8		2.5		502		Btuh	
6	Concrete Blk,Hollow- Ext					0.13	5.0/0.0		469.9		2.5		1193		Btuh	
7	Concrete Blk,Hollow- Ext					0.13	5.0/0.0		291.6		2.5		740		Btuh	
	Wall Total								1495 (sqft)					3580		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/Meta/RB					0.025	38.0/0.0		1897.0		0.86		1637		Btuh	
	Ceiling Total								1897 (sqft)					1637		Btuh
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		1807 (ft-perimeter)		0.0		0		Btuh	
	Floor Total								1807.0 (sqft)					0		Btuh
	Envelope Subtotal:													8802		Btuh
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural					0.13		16859		1		35.1		731		Btuh
Internal gain					Occupants		Btuh/occupant		Appliance				Load			
					6		X 230		+		1200		2580		Btuh	
	Sensible Envelope Load:													12113		Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.383)		4635		Btuh	
	Sensible Load All Zones													16747		Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Peter & Anna Lev

Project Title:

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

Lot 9 Creek Run Plantation

2/5/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12113 Btuh
	Sensible Duct Load	4635 Btuh
	Total Sensible Zone Loads	16747 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16747 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1213 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1390 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3802 Btuh
	TOTAL GAIN	20549 Btuh

EQUIPMENT

1. Central Unit	#	20549 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