

Residential System Sizing Calculation

Summary

394 Pinehurst Drive
Lake City, FL 32055

Project Title:
Spec House - 394 Pinehurst Dr

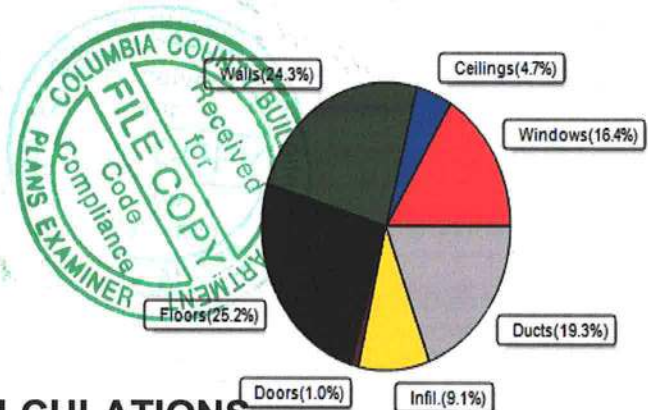
10/25/2018

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	35649 Btuh	Total cooling load calculation	29276 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 35649	Sensible (SHR = 0.70)	83.0 20067
Heat Pump + Auxiliary(0.0kW)	100.0 35649	Latent	168.7 8600
		Total (Electric Heat Pump)	97.9 28667

WINTER CALCULATIONS

Winter Heating Load (for 2236 sqft)

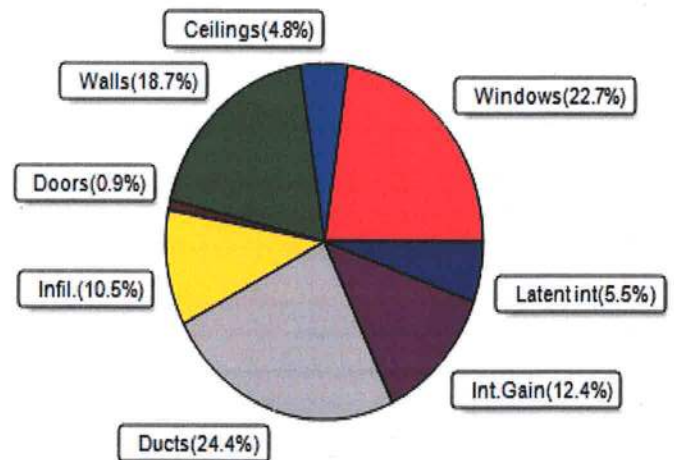
Load component		Load	
Window total	406 sqft	5842	Btuh
Wall total	2436 sqft	8650	Btuh
Door total	20 sqft	368	Btuh
Ceiling total	1639 sqft	1664	Btuh
Floor total	See detail report	8999	Btuh
Infiltration	74 cfm	3240	Btuh
Duct loss		6886	Btuh
Subtotal		35649	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		35649	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2236 sqft)

Load component		Load	
Window total	406 sqft	6652	Btuh
Wall total	2436 sqft	5477	Btuh
Door total	20 sqft	276	Btuh
Ceiling total	1639 sqft	1414	Btuh
Floor total		0	Btuh
Infiltration	55 cfm	1154	Btuh
Internal gain		3640	Btuh
Duct gain		5565	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		24179	Btuh
Latent gain(ducts)		1582	Btuh
Latent gain(infiltration)		1916	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		5097	Btuh
TOTAL HEAT GAIN		29276	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *[Signature]*

DATE: 10/25/2018

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

394 Pinehurst Drive
Lake City, FL 32055

Project Title:
Spec House - 394 Pinehurst Dr
Building Type: User

10/25/2018

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	9.0		14.4	130 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	20.0		14.4	288 Btuh
3	2, NFRC 0.25	TIM	0.36	S	40.0		14.4	576 Btuh
4	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
5	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	16.0		14.4	230 Btuh
7	2, NFRC 0.25	Vinyl	0.36	N	4.0		14.4	58 Btuh
8	2, NFRC 0.25	Metal	0.36	N	106.7		14.4	1536 Btuh
9	2, NFRC 0.25	Vinyl	0.36	N	9.0		14.4	130 Btuh
10	2, NFRC 0.25	Vinyl	0.36	S	15.0		14.4	216 Btuh
11	2, NFRC 0.25	Vinyl	0.36	N	32.0		14.4	461 Btuh
12	2, NFRC 0.25	Vinyl	0.36	E	32.0		14.4	461 Btuh
13	2, NFRC 0.25	Vinyl	0.36	N	45.0		14.4	648 Btuh
14	2, NFRC 0.25	Vinyl	0.36	W	32.0		14.4	461 Btuh
Window Total					405.7(sqft)			5842 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	320 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	111		3.55	394 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	234		3.55	831 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	47		3.55	167 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	231		3.55	821 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh
10	Frame - Wood	- Adj	(0.089)	13.0/0.0	64		3.55	227 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	330 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	180		3.55	639 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	240		3.55	852 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	272		3.55	966 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.55	806 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	272		3.55	966 Btuh
Wall Total					2436(sqft)			8650 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		980		1.0	995 Btuh
2	Vented Attic/L/Shing	(0.025)	38.0/0.0		659		1.0	669 Btuh
Ceiling Total					1639(sqft)			1664Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

394 Pinehurst Drive
Lake City, FL 32055

Project Title:
Spec House - 394 Pinehurst Dr
Building Type: User

10/25/2018

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	190.7 ft(perim.)	47.2	8999 Btuh
2	Interior	(1.180)	19.0	628.0 sqft	0.0	0 Btuh
	Floor Total			2236 sqft		8999 Btuh
Envelope Subtotal:						25523 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.23	19496	1.00	74.0	3240 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.239)	6886 Btuh
All Zones	Sensible Subtotal All Zones					35649 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	35649 Btuh 0 Btuh 35649 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	35649 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

394 Pinehurst Drive
Lake City, FL 32055

Project Title:
Spec House - 394 Pinehurst Dr

10/25/2018

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		5.5ft.	1.0ft.	9.0	9.0	0.0	12	14	109 Btuh
2	2 NFRC	0.25, 0.36	No	No	S		8.5ft.	1.0ft.	20.0	20.0	0.0	12	14	242 Btuh
3	2 NFRC	0.25, 0.36	No	No	S		8.5ft.	1.0ft.	40.0	40.0	0.0	12	14	484 Btuh
4	2 NFRC	0.25, 0.36	No	No	S		5.0ft.	1.0ft.	15.0	15.0	0.0	12	14	181 Btuh
5	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901 Btuh
6	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	16.0	0.0	16.0	12	12	194 Btuh
7	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	4.0	0.0	4.0	12	12	48 Btuh
8	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	106.7	0.0	106.7	12	12	1291 Btuh
9	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	9.0	0.0	9.0	12	12	109 Btuh
10	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	15.0	15.0	0.0	12	14	181 Btuh
11	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	4.0ft.	32.0	0.0	32.0	12	12	387 Btuh
12	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	4.0ft.	32.0	0.0	32.0	12	31	990 Btuh
13	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	4.0ft.	45.0	0.0	45.0	12	12	544 Btuh
14	2 NFRC	0.25, 0.36	No	No	W		1.0ft.	4.0ft.	32.0	0.0	32.0	12	31	990 Btuh
	Window Total								406 (sqft)					6652 Btuh
Walls	Type	U-Value				R-Value		Area(sqft)			HTM		Load	
						Cav/Sheath								
1	Frame - Wood - Ext	0.09				13.0/0.0		90.0			2.3		204 Btuh	
2	Frame - Wood - Ext	0.09				13.0/0.0		78.0			2.3		177 Btuh	
3	Frame - Wood - Ext	0.09				13.0/0.0		120.0			2.3		272 Btuh	
4	Frame - Wood - Ext	0.09				13.0/0.0		78.0			2.3		177 Btuh	
5	Frame - Wood - Ext	0.09				13.0/0.0		111.0			2.3		251 Btuh	
6	Frame - Wood - Ext	0.09				13.0/0.0		234.0			2.3		530 Btuh	
7	Frame - Wood - Ext	0.09				13.0/0.0		47.0			2.3		106 Btuh	
8	Frame - Wood - Ext	0.09				13.0/0.0		231.3			2.3		524 Btuh	
9	Frame - Wood - Ext	0.09				13.0/0.0		99.0			2.3		224 Btuh	
10	Frame - Wood - Adj	0.09				13.0/0.0		64.0			1.7		108 Btuh	
11	Frame - Wood - Ext	0.09				13.0/0.0		93.0			2.3		210 Btuh	
12	Frame - Wood - Ext	0.09				13.0/0.0		180.0			2.3		407 Btuh	
13	Frame - Wood - Ext	0.09				13.0/0.0		240.0			2.3		543 Btuh	
14	Frame - Wood - Ext	0.09				13.0/0.0		272.0			2.3		616 Btuh	
15	Frame - Wood - Ext	0.09				13.0/0.0		227.0			2.3		514 Btuh	
16	Frame - Wood - Ext	0.09				13.0/0.0		272.0			2.3		616 Btuh	
	Wall Total								2436 (sqft)					5477 Btuh
Doors	Type	U-Value				R-Value		Area (sqft)			HTM		Load	
1	Insulated - Garage	0.09				13.0/0.0		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		980.0			0.86		846 Btuh	
2	Vented AtticLight/Shingle/RB	0.025				38.0/0.0		659.0			0.86		569 Btuh	
	Ceiling Total								1639 (sqft)					1414 Btuh
Floors	Type	U-Value				R-Value		Size			HTM		Load	
1	Slab On Grade	0.0				19.0		1608 (ft-perimeter)			0.0		0 Btuh	
2	Interior	0.0				19.0		628 (sqft)			0.0		0 Btuh	
	Floor Total								2236.0 (sqft)					0 Btuh
	Envelope Subtotal:												13819 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

394 Pinehurst Drive
Lake City, FL 32055

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Spec House - 394 Pinehurst Dr

10/25/2018

Infiltration	Type Natural	Average ACH 0.17	Volume(cuft) 19496	Wall Ratio 1	CFM= 55.5	Load 1154 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1800	Load 3640 Btuh
	Sensible Envelope Load:					18614 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.299)		5565 Btuh
	Sensible Load All Zones					24179 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

394 Pinehurst Drive
Lake City, FL 32055

Project Title: Climate: FL_GAINESVILLE_REGIONAL_A
Spec House - 394 Pinehurst Dr

10/25/2018

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18614 Btuh
	Sensible Duct Load	5565 Btuh
	Total Sensible Zone Loads	24179 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	24179 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1916 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1582 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5097 Btuh
	TOTAL GAIN	29276 Btuh

EQUIPMENT

1. Central Unit	#	28667 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