

Residential System Sizing Calculation

Summary

Project Title:
Buddy & Mary Slay

Lake City, FL 32055

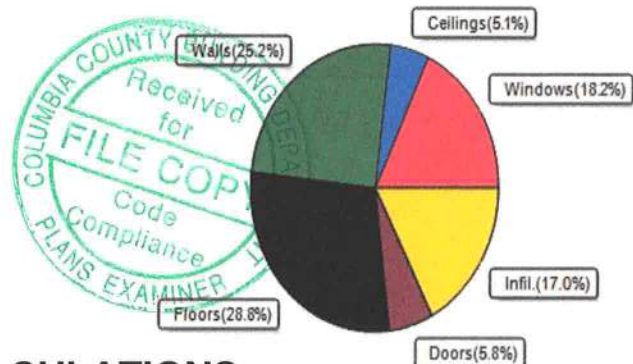
8/12/2020

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 55529 Btuh			Total cooling load calculation 44969 Btuh		
Submitted heating capacity % of calc Btuh			Submitted cooling capacity % of calc Btuh		
Total (Electric Heat Pump) 162.1 90000			Sensible (SHR = 0.85) 206.9 76500		
Heat Pump + Auxiliary(0.0kW) 162.1 90000			Latent 168.9 13500		
			Total (Electric Heat Pump) 200.1 90000		

WINTER CALCULATIONS

Winter Heating Load (for 4976 sqft)

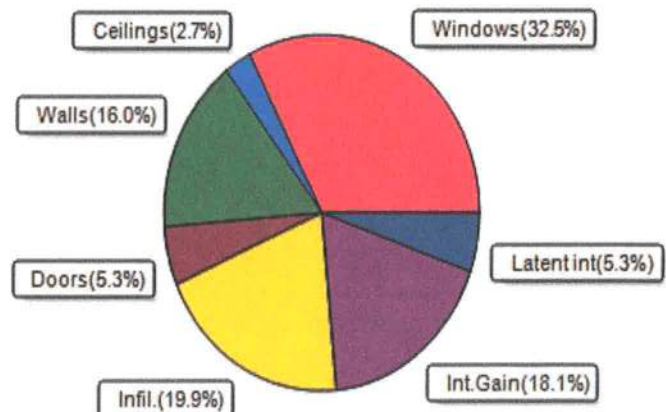
Load component		Load	
Window total	765 sqft	10093	Btuh
Wall total	4582 sqft	13967	Btuh
Door total	200 sqft	3200	Btuh
Ceiling total	4976 sqft	2807	Btuh
Floor total	See detail report	16001	Btuh
Infiltration	216 cfm	9462	Btuh
Duct loss		0	Btuh
Subtotal		55529	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		55529	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 4976 sqft)

Load component		Load	
Window total	765 sqft	14612	Btuh
Wall total	4582 sqft	7197	Btuh
Door total	200 sqft	2400	Btuh
Ceiling total	4976 sqft	1235	Btuh
Floor total		0	Btuh
Infiltration	162 cfm	3371	Btuh
Internal gain		8160	Btuh
Duct gain		0	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		36975	Btuh
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		5593	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		2400	Btuh
Total latent gain		7993	Btuh
TOTAL HEAT GAIN		44969	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

8-12-20

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Buddy & Mary Slay

Lake City, FL 32055

8/12/2020

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	0.22, 0.33	No	No	N	1.5ft	1.3ft	56.0	0.0	56.0	11	11	610	Btuh
2	2 NFRC	0.22, 0.33	No	No	N	1.5ft	1.3ft	6.9	0.0	6.9	11	11	75	Btuh
3	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	9.0	0.0	9.0	11	27	248	Btuh
4	2 NFRC	0.22, 0.33	No	No	E	14.5f	1.3ft	12.0	12.0	0.0	11	27	131	Btuh
5	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	25.0	0.0	25.0	11	27	687	Btuh
6	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	10.0	0.0	10.0	11	27	275	Btuh
7	2 NFRC	0.22, 0.33	No	No	N	1.5ft	1.3ft	9.0	0.0	9.0	11	11	98	Btuh
8	2 NFRC	0.22, 0.33	No	No	N	1.5ft	1.3ft	4.3	0.0	4.3	11	11	47	Btuh
9	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	6.7	6.7	0.0	11	13	73	Btuh
10	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	28.0	28.0	0.0	11	13	305	Btuh
11	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	12.7	12.7	0.0	11	13	138	Btuh
12	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	16.6	16.6	0.0	11	13	181	Btuh
13	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	6.9	6.9	0.0	11	13	75	Btuh
14	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	5.3	5.3	0.0	11	13	58	Btuh
15	2 NFRC	0.22, 0.33	No	No	W	7.5ft	1.3ft	72.0	44.0	28.0	11	27	1249	Btuh
16	2 NFRC	0.22, 0.33	No	No	W	20.5f	1.3ft	72.0	72.0	0.0	11	27	785	Btuh
17	2 NFRC	0.22, 0.33	No	No	N	20.5f	1.3ft	72.0	0.0	72.0	11	11	785	Btuh
18	2 NFRC	0.22, 0.33	No	No	W	20.5f	1.3ft	128.0	128.0	0.0	11	27	1395	Btuh
19	2 NFRC	0.22, 0.33	No	No	N	1.5ft	1.3ft	6.9	0.0	6.9	11	11	75	Btuh
20	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	6.9	0.0	6.9	11	27	189	Btuh
21	2 NFRC	0.22, 0.33	No	No	N	1.5ft	1.3ft	16.0	0.0	16.0	11	11	174	Btuh
22	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	13.9	0.0	13.9	11	27	382	Btuh
23	2 NFRC	0.22, 0.33	No	No	E	14.5f	1.3ft	26.7	26.7	0.0	11	27	291	Btuh
24	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	13.9	13.9	0.0	11	13	151	Btuh
25	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	4.0	4.0	0.0	11	13	44	Btuh
26	2 NFRC	0.22, 0.33	No	No	W	15.5f	1.3ft	96.0	96.0	0.0	11	27	1046	Btuh
27	2 NFRC	0.22, 0.33	No	No	W	1.5ft	1.3ft	28.0	0.0	28.0	11	27	769	Btuh
Excursion													4277	Btuh
Window Total								765 (sqft)					14612	Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Buddy & Mary Slay

Lake City, FL 32055

8/12/2020

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load
			Cav/Sheath			
1	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	483.8	1.0	496 Btuh
2	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	64.3	1.0	66 Btuh
3	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	50.0	1.0	51 Btuh
4	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	13.3	1.0	14 Btuh
5	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	88.0	1.0	90 Btuh
6	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	28.0	1.0	29 Btuh
7	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	88.0	1.0	90 Btuh
8	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	69.0	1.0	71 Btuh
9	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	76.6	1.0	79 Btuh
10	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	20.0	1.0	21 Btuh
11	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	20.0	1.0	21 Btuh
12	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	450.5	1.0	462 Btuh
13	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	20.0	1.0	21 Btuh
14	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	213.3	1.0	219 Btuh
15	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	84.7	1.0	87 Btuh
16	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	93.3	1.0	96 Btuh
17	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	96.0	1.0	98 Btuh
18	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	80.0	1.0	82 Btuh
19	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	74.0	1.0	76 Btuh
20	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	95.0	1.0	97 Btuh
21	Concrete Blk,Hollow - Ext	0.06	13.0/0.0	125.0	1.0	128 Btuh
22	Frame - Wood - Adj	0.09	13.0/0.0	282.7	1.7	477 Btuh
23	Frame - Wood - Adj	0.09	13.0/0.0	212.7	1.7	359 Btuh
24	Frame - Wood - Ext	0.09	13.0/0.0	284.8	2.3	645 Btuh
25	Frame - Wood - Ext	0.09	13.0/0.0	56.5	2.3	128 Btuh
26	Frame - Wood - Ext	0.09	13.0/0.0	20.0	2.3	45 Btuh
27	Frame - Wood - Ext	0.09	13.0/0.0	70.0	2.3	158 Btuh
28	Frame - Wood - Ext	0.09	13.0/0.0	237.3	2.3	537 Btuh
29	Frame - Wood - Ext	0.09	13.0/0.0	79.4	2.3	180 Btuh
30	Frame - Wood - Ext	0.09	13.0/0.0	73.3	2.3	166 Btuh
31	Frame - Wood - Ext	0.09	13.0/0.0	46.7	2.3	106 Btuh
32	Frame - Wood - Ext	0.09	13.0/0.0	93.3	2.3	211 Btuh
33	Frame - Wood - Ext	0.09	13.0/0.0	137.1	2.3	310 Btuh
34	Frame - Wood - Ext	0.09	13.0/0.0	40.0	2.3	91 Btuh
35	Frame - Wood - Ext	0.09	13.0/0.0	328.3	2.3	743 Btuh
36	Frame - Wood - Ext	0.09	13.0/0.0	92.3	2.3	209 Btuh
37	Frame - Wood - Ext	0.09	13.0/0.0	57.7	2.3	131 Btuh
38	Frame - Wood - Ext	0.09	13.0/0.0	137.0	2.3	310 Btuh
	Wall Total			4582 (sqft)		7197 Btuh
Doors	Type			Area (sqft)	HTM	Load
1	Insulated - Exterior			48.0	12.0	576 Btuh
2	Insulated - Exterior			40.0	12.0	480 Btuh
3	Insulated - Exterior			40.0	12.0	480 Btuh
4	Insulated - Garage			24.0	12.0	288 Btuh
5	Insulated - Garage			24.0	12.0	288 Btuh
6	Insulated - Exterior			24.0	12.0	288 Btuh
	Door Total			200 (sqft)		2400 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Unvented Attic/Light/Tile	0.014	30.0/40.0	3597.0	0.25	893 Btuh
2	Unvented Attic/Light/Tile	0.014	30.0/40.0	1379.0	0.25	342 Btuh
	Ceiling Total			4976 (sqft)		1235 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	3597 (ft-perimeter)	0.0	0 Btuh
2	Interior		0.0	1379 (sqft)	0.0	0 Btuh
	Floor Total			4976.0 (sqft)		0 Btuh
		EnergyGauge® / USRC2016.10.16				

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Buddy & Mary Slay

Lake City, FL 32055

8/12/2020

	Envelope Subtotal:					25445 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.20	49760	1	162.1	3371 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		12	X 230	+	5400	8160 Btuh
	Sensible Envelope Load:					36975 Btuh
Duct load	Average sealed, Supply(R6.0-Condi), Return(R6.0-Condi)				(DGM of 0.000)	0 Btuh
	Sensible Load All Zones					36975 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Buddy & Mary Slay

Lake City, FL 32055

8/12/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	36975 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	36975 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	36975 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	5593 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (12.0 people @ 200 Btuh per person)	2400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	7993 Btuh
	TOTAL GAIN	44969 Btuh

EQUIPMENT

1. Central Unit	#	60000 Btuh
2. Central Unit	#	30000 Btuh

*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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32055

Project Title:
Buddy & Mary Slay
Building Type: User

8/12/2020

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 0.22	Vinyl	0.33	N	56.0		13.2	739 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	6.9		13.2	91 Btuh
3	2, NFRC 0.22	Vinyl	0.33	E	9.0		13.2	119 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	12.0		13.2	158 Btuh
5	2, NFRC 0.22	Vinyl	0.33	E	25.0		13.2	330 Btuh
6	2, NFRC 0.22	Vinyl	0.33	E	10.0		13.2	132 Btuh
7	2, NFRC 0.22	Vinyl	0.33	N	9.0		13.2	119 Btuh
8	2, NFRC 0.22	Vinyl	0.33	N	4.3		13.2	57 Btuh
9	2, NFRC 0.22	Vinyl	0.33	S	6.7		13.2	88 Btuh
10	2, NFRC 0.22	Vinyl	0.33	S	28.0		13.2	370 Btuh
11	2, NFRC 0.22	Vinyl	0.33	S	12.7		13.2	167 Btuh
12	2, NFRC 0.22	Vinyl	0.33	S	16.6		13.2	219 Btuh
13	2, NFRC 0.22	Vinyl	0.33	S	6.9		13.2	91 Btuh
14	2, NFRC 0.22	Vinyl	0.33	S	5.3		13.2	70 Btuh
15	2, NFRC 0.22	Vinyl	0.33	W	72.0		13.2	950 Btuh
16	2, NFRC 0.22	Vinyl	0.33	W	72.0		13.2	950 Btuh
17	2, NFRC 0.22	Vinyl	0.33	N	72.0		13.2	950 Btuh
18	2, NFRC 0.22	Vinyl	0.33	W	128.0		13.2	1690 Btuh
19	2, NFRC 0.22	Vinyl	0.33	N	6.9		13.2	91 Btuh
20	2, NFRC 0.22	Vinyl	0.33	E	6.9		13.2	91 Btuh
21	2, NFRC 0.22	Vinyl	0.33	N	16.0		13.2	211 Btuh
22	2, NFRC 0.22	Vinyl	0.33	E	13.9		13.2	183 Btuh
23	2, NFRC 0.22	Vinyl	0.33	E	26.7		13.2	352 Btuh
24	2, NFRC 0.22	Vinyl	0.33	S	13.9		13.2	183 Btuh
25	2, NFRC 0.22	Vinyl	0.33	S	4.0		13.2	53 Btuh
26	2, NFRC 0.22	Vinyl	0.33	W	96.0		13.2	1267 Btuh
27	2, NFRC 0.22	Vinyl	0.33	W	28.0		13.2	370 Btuh
Window Total					764.6(sqft)			10093 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Buddy & Mary Slay
Building Type: User

8/12/2020

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	484	2.56	1240 Btuh
2	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	64	2.56	165 Btuh
3	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	50	2.56	128 Btuh
4	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	13	2.56	34 Btuh
5	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	88	2.56	226 Btuh
6	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	28	2.56	72 Btuh
7	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	88	2.56	226 Btuh
8	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	69	2.56	177 Btuh
9	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	77	2.56	196 Btuh
10	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	20	2.56	51 Btuh
11	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	20	2.56	51 Btuh
12	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	451	2.56	1155 Btuh
13	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	20	2.56	51 Btuh
14	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	213	2.56	547 Btuh
15	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	85	2.56	217 Btuh
16	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	93	2.56	239 Btuh
17	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	96	2.56	246 Btuh
18	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	80	2.56	205 Btuh
19	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	74	2.56	190 Btuh
20	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	95	2.56	244 Btuh
21	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	125	2.56	320 Btuh
22	Frame - Wood - Adj		(0.089)	13.0/0.0	283	3.55	1004 Btuh
23	Frame - Wood - Adj		(0.089)	13.0/0.0	213	3.55	755 Btuh
24	Frame - Wood - Ext		(0.089)	13.0/0.0	285	3.55	1011 Btuh
25	Frame - Wood - Ext		(0.089)	13.0/0.0	56	3.55	200 Btuh
26	Frame - Wood - Ext		(0.089)	13.0/0.0	20	3.55	71 Btuh
27	Frame - Wood - Ext		(0.089)	13.0/0.0	70	3.55	249 Btuh
28	Frame - Wood - Ext		(0.089)	13.0/0.0	237	3.55	843 Btuh
29	Frame - Wood - Ext		(0.089)	13.0/0.0	79	3.55	282 Btuh
30	Frame - Wood - Ext		(0.089)	13.0/0.0	73	3.55	260 Btuh
31	Frame - Wood - Ext		(0.089)	13.0/0.0	47	3.55	166 Btuh
32	Frame - Wood - Ext		(0.089)	13.0/0.0	93	3.55	331 Btuh
33	Frame - Wood - Ext		(0.089)	13.0/0.0	137	3.55	487 Btuh
34	Frame - Wood - Ext		(0.089)	13.0/0.0	40	3.55	142 Btuh
35	Frame - Wood - Ext		(0.089)	13.0/0.0	328	3.55	1166 Btuh
36	Frame - Wood - Ext		(0.089)	13.0/0.0	92	3.55	328 Btuh
37	Frame - Wood - Ext		(0.089)	13.0/0.0	58	3.55	205 Btuh
38	Frame - Wood - Ext		(0.089)	13.0/0.0	137	3.55	486 Btuh
Wall Total					4582(sqft)		13967 Btuh