

Residential System Sizing Calculation

Summary

Project Title:
Chad & Joni Stewart

, FL

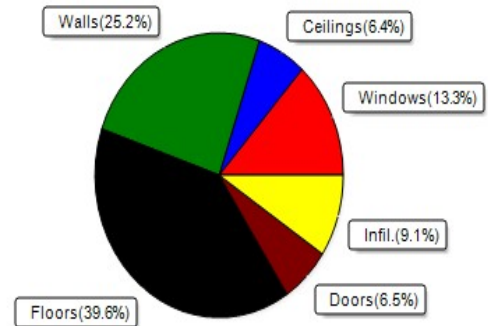
2/8/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	36679	Btuh	Total cooling load calculation	25576	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	163.6	60000	Sensible (SHR = 0.85)	231.7	51000
Heat Pump + Auxiliary(0.0kW)	163.6	60000	Latent	252.4	9000
			Total (Electric Heat Pump)	234.6	60000

WINTER CALCULATIONS

Winter Heating Load (for 3326 sqft)

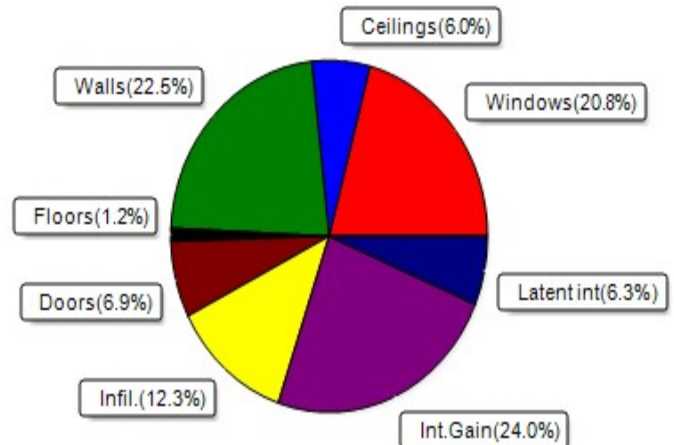
Load component	Load
Window total 470 sqft	4883 Btuh
Wall total 2598 sqft	9226 Btuh
Door total 148 sqft	2368 Btuh
Ceiling total 3326 sqft	2355 Btuh
Floor total See detail report	14523 Btuh
Infiltration 76 cfm	3325 Btuh
Duct loss	0 Btuh
Subtotal	36679 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	36679 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3326 sqft)

Load component	Load
Window total 470 sqft	5320 Btuh
Wall total 2598 sqft	5751 Btuh
Door total 148 sqft	1776 Btuh
Ceiling total 3326 sqft	1531 Btuh
Floor total	309 Btuh
Infiltration 57 cfm	1184 Btuh
Internal gain	6140 Btuh
Duct gain	0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	22011 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	1965 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1600 Btuh
Total latent gain	3565 Btuh
TOTAL HEAT GAIN	25576 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

2-8-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Chad & Joni Stewart

, FL

2/8/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.20, 0.26	No	No	N	1.5ft	2.3ft	60.0	0.0	60.0	9	9	549 Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	16.0	0.0	16.0	9	9	146 Btuh
3	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	108.0	0.0	108.0	9	9	988 Btuh
4	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	8.0	0.0	8.0	9	9	73 Btuh
5	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	36.0	0.0	36.0	9	9	329 Btuh
6	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	36.0	0.0	36.0	9	9	329 Btuh
7	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	30.0	0.0	30.0	9	24	727 Btuh
8	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	16.0	0.0	16.0	9	24	388 Btuh
9	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	9	11	274 Btuh
10	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	20.0	20.0	0.0	9	11	183 Btuh
11	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	5.0	5.0	0.0	9	11	46 Btuh
12	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137 Btuh
13	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	9	11	274 Btuh
14	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	22.5	22.5	0.0	9	11	206 Btuh
15	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	8.0	0.0	8.0	9	24	194 Btuh
16	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	10.0	0.0	10.0	9	24	242 Btuh
17	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137 Btuh
18	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	4.0	0.0	4.0	9	24	97 Btuh
	Window Total							470 (sqft)					5320 Btuh
Walls	Type					U-Value	R-Value	Area(sqft)			HTM		Load
							Cav/Sheath						
1	Frame - Wood - Ext					0.09	13.0/0.0	214.5			2.3		485 Btuh
2	Frame - Wood - Ext					0.09	13.0/0.0	30.0			2.3		68 Btuh
3	Frame - Wood - Ext					0.09	13.0/0.0	312.0			2.3		706 Btuh
4	Frame - Wood - Ext					0.09	13.0/0.0	30.0			2.3		68 Btuh
5	Frame - Wood - Ext					0.09	13.0/0.0	127.5			2.3		289 Btuh
6	Frame - Wood - Ext					0.09	13.0/0.0	252.5			2.3		571 Btuh
7	Frame - Wood - Ext					0.09	13.0/0.0	36.0			2.3		81 Btuh
8	Frame - Wood - Ext					0.09	13.0/0.0	66.0			2.3		149 Btuh
9	Frame - Wood - Ext					0.09	13.0/0.0	100.5			2.3		227 Btuh
10	Frame - Wood - Ext					0.09	13.0/0.0	118.5			2.3		268 Btuh
11	Frame - Wood - Ext					0.09	13.0/0.0	156.0			2.3		353 Btuh
12	Frame - Wood - Ext					0.09	13.0/0.0	81.0			2.3		183 Btuh
13	Frame - Wood - Ext					0.09	13.0/0.0	96.0			2.3		217 Btuh
14	Frame - Wood - Ext					0.09	13.0/0.0	45.0			2.3		102 Btuh
15	Frame - Wood - Ext					0.09	13.0/0.0	99.0			2.3		224 Btuh
16	Frame - Wood - Adj					0.09	13.0/0.0	225.3			1.7		380 Btuh
17	Frame - Wood - Ext					0.09	13.0/0.0	211.0			2.3		478 Btuh
18	Frame - Wood - Ext					0.09	13.0/0.0	32.0			2.3		72 Btuh
19	Frame - Wood - Ext					0.09	13.0/0.0	78.0			2.3		177 Btuh
20	Frame - Wood - Ext					0.09	13.0/0.0	32.0			2.3		72 Btuh
21	Frame - Wood - Ext					0.09	13.0/0.0	107.7			2.3		244 Btuh
22	Frame - Wood - Ext					0.09	13.0/0.0	32.0			2.3		72 Btuh
23	Frame - Wood - Ext					0.09	13.0/0.0	84.0			2.3		190 Btuh
24	Frame - Wood - Ext					0.09	13.0/0.0	32.0			2.3		72 Btuh
	Wall Total							2598 (sqft)					5751 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Chad & Joni Stewart

, FL

2/8/2024

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			20.0	12.0	240 Btuh
	Door Total			148 (sqft)		1776 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	SnglAsmb no airsp/DarkShingle	0.018	30.0/30.0	2886.0	0.46	1328 Btuh
2	SnglAsmb no airsp/DarkShingle	0.018	30.0/30.0	440.0	0.46	202 Btuh
	Ceiling Total			3326 (sqft)		1531 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2886 (ft-perimeter)	0.0	0 Btuh
2	Raised Wood - Adj		19.0	440 (sqft)	0.7	309 Btuh
	Floor Total			3326.0 (sqft)		309 Btuh
	Envelope Subtotal:					14686 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	29494	1	56.9	1184 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		8	X 230	+	4300	6140 Btuh
	Sensible Envelope Load:					22011 Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)					0 Btuh
	Sensible Load All Zones					22011 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Chad & Joni Stewart

, FL

2/8/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	22011 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	22011 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	22011 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1965 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3565 Btuh
	TOTAL GAIN	25576 Btuh

EQUIPMENT

1. Central Unit	#	36000 Btuh
2. Central Unit	#	24000 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

Project Title:
Chad & Joni Stewart
Building Type: User

, FL

2/8/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.20	Vinyl	0.26	N	60.0		10.4	624 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	16.0		10.4	166 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	108.0		10.4	1123 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	8.0		10.4	83 Btuh
5	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
6	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4	312 Btuh
8	2, NFRC 0.20	Vinyl	0.26	E	16.0		10.4	166 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
10	2, NFRC 0.20	Vinyl	0.26	S	20.0		10.4	208 Btuh
11	2, NFRC 0.20	Vinyl	0.26	S	5.0		10.4	52 Btuh
12	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
13	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
14	2, NFRC 0.20	Vinyl	0.26	S	22.5		10.4	234 Btuh
15	2, NFRC 0.20	Vinyl	0.26	W	8.0		10.4	83 Btuh
16	2, NFRC 0.20	Vinyl	0.26	E	10.0		10.4	104 Btuh
17	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
18	2, NFRC 0.20	Vinyl	0.26	W	4.0		10.4	42 Btuh
	Window Total				469.5(sqft)			4883 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	215		3.55	762 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	312		3.55	1108 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	30		3.55	107 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	453 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	253		3.55	896 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	66		3.55	234 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	101		3.55	357 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	119		3.55	421 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	156		3.55	554 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	99		3.55	351 Btuh
16	Frame - Wood	- Adj	(0.089)	13.0/0.0	225		3.55	800 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	211		3.55	749 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	114 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	32		3.55	114 Btuh
21	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	382 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Chad & Joni Stewart
Building Type: User

2/8/2024

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	32	3.55	114 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	84	3.55	298 Btuh
24	Frame - Wood	- Ext	(0.089)	13.0/0.0	32	3.55	114 Btuh
	Wall Total				2599(sqft)		9226 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		48	16.0	768 Btuh
2	Insulated - Exterior,	n	(0.400)		40	16.0	640 Btuh
3	Insulated - Exterior,	n	(0.400)		40	16.0	640 Btuh
4	Insulated - Garage,	n	(0.400)		20	16.0	320 Btuh
	Door Total				148(sqft)		2368Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Single as/D/Shing		(0.018)	30.0/30.0	2886	0.71	2043 Btuh
2	Single as/D/Shing		(0.018)	30.0/30.0	440	0.71	312 Btuh
	Ceiling Total				3326(sqft)		2355Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	289.0 ft(perim.)	47.2	13641 Btuh
2	Raised Wood - Adj		(0.050)	19.0	440.0 sqft	2.0	883 Btuh
	Floor Total				3326 sqft		14523 Btuh
	Envelope Subtotal:						33354 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.15	29494	1.00	75.8	3325 Btuh
Duct load	(DLM of 0.000)						0 Btuh
All Zones	Sensible Subtotal All Zones						36679 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	36679 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	36679 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Chad & Joni Stewart
Building Type: User

2/8/2024

EQUIPMENT

1. Electric Heat Pump	#	36000 Btuh
2. Electric Heat Pump	#	24000 Btuh

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