

Residential System Sizing Calculation

Summary

Project Title:
CJ Custom Carpentry

Lake City, FL

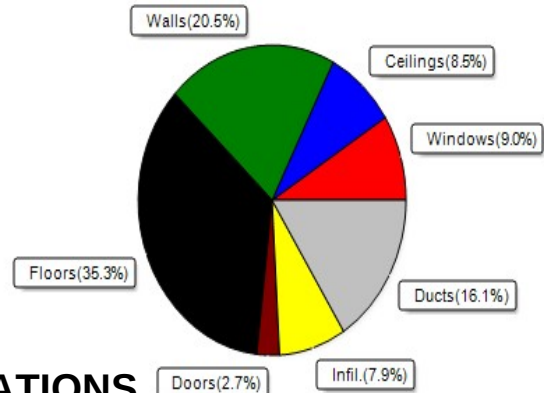
1/26/2021

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	25836 Btuh	Total cooling load calculation	19269 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	139.3 36000	Sensible (SHR = 0.85)	181.7 30600
Heat Pump + Auxiliary(0.0kW)	139.3 36000	Latent	222.6 5400
		Total (Electric Heat Pump)	186.8 36000

WINTER CALCULATIONS

Winter Heating Load (for 1728 sqft)

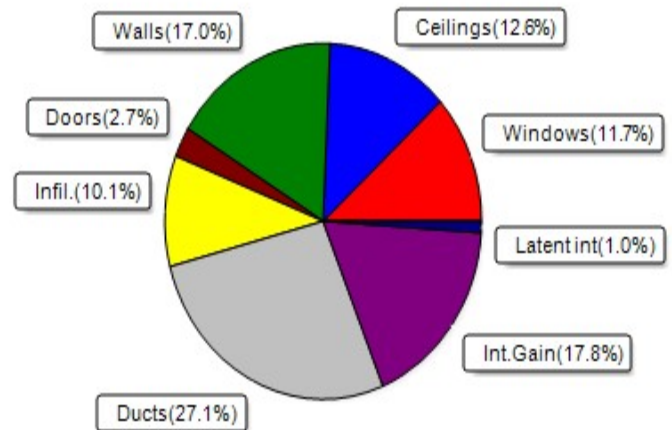
Load component	Load
Window total 176 sqft	2319 Btuh
Wall total 1539 sqft	5307 Btuh
Door total 44 sqft	704 Btuh
Ceiling total 1728 sqft	2201 Btuh
Floor total 1728 sqft	9110 Btuh
Infiltration 47 cfm	2048 Btuh
Duct loss	4147 Btuh
Subtotal	25836 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	25836 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1728 sqft)

Load component	Load
Window total 176 sqft	2263 Btuh
Wall total 1539 sqft	3274 Btuh
Door total 44 sqft	528 Btuh
Ceiling total 1728 sqft	2421 Btuh
Floor total	0 Btuh
Infiltration 35 cfm	730 Btuh
Internal gain	3430 Btuh
Duct gain	4199 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	16844 Btuh
Latent gain(ducts)	1015 Btuh
Latent gain(infiltration)	1211 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	200 Btuh
Total latent gain	2425 Btuh
TOTAL HEAT GAIN	19269 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
CJ Custom Carpentry

Lake City, FL

1/26/2021

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	0.22, 0.33	No	No	N		1.5ft	1.3ft	16.0	0.0	16.0	11	11	174 Btuh
2	2 NFRC	0.22, 0.33	No	No	N		9.5ft	1.3ft	53.3	0.0	53.3	11	11	581 Btuh
3	2 NFRC	0.22, 0.33	No	No	N		1.5ft	1.3ft	32.0	0.0	32.0	11	11	349 Btuh
4	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	16.0	0.0	16.0	11	27	440 Btuh
5	2 NFRC	0.22, 0.33	No	No	S		8.5ft	1.3ft	37.3	37.3	0.0	11	13	407 Btuh
6	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	16.0	16.0	0.0	11	13	174 Btuh
7	2 NFRC	0.22, 0.33	No	No	W		1.5ft	1.3ft	5.0	0.0	5.0	11	27	137 Btuh
Window Total									176 (sqft)					2263 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load	
							Cav/Sheath							
1	Frame - Wood - Ext						0.09	13.0/0.6	92.0		2.2		202 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.6	72.0		2.2		158 Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.6	141.7		2.2		311 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.6	163.0		2.2		358 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.6	263.0		2.2		578 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.6	135.3		2.2		298 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.6	50.0		2.2		110 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.6	89.0		2.2		196 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.6	129.0		2.2		284 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.6	18.0		2.2		40 Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.6	46.0		2.2		101 Btuh	
12	Frame - Wood - Ext						0.09	13.0/0.6	18.0		2.2		40 Btuh	
13	Frame - Wood - Ext						0.09	13.0/0.6	126.0		2.2		277 Btuh	
14	Frame - Wood - Adj						0.09	13.0/0.6	196.0		1.6		321 Btuh	
Wall Total									1539 (sqft)					3274 Btuh
Doors	Type								Area (sqft)		HTM		Load	
1	Insulated - Exterior								24.0		12.0		288 Btuh	
2	Insulated - Garage								20.0		12.0		240 Btuh	
Door Total									44 (sqft)					528 Btuh
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load	
1	Vented Attic/Light/Shingle						0.032	30.0/0.0	1728.0		1.40		2421 Btuh	
Ceiling Total									1728 (sqft)					2421 Btuh
Floors	Type								R-Value		Size		HTM	Load
1	Slab On Grade								0.0		1728 (ft-perimeter)		0.0	0 Btuh
Floor Total									1728.0 (sqft)					0 Btuh
Envelope Subtotal:													8486 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
CJ Custom Carpentry

Lake City, FL

1/26/2021

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 15552	Wall Ratio 1	CFM= 35.1	Load 730 Btuh
Internal gain		Occupants 1	Btuh/occupant X 230	Appliance +	3200	Load 3430 Btuh
					Sensible Envelope Load:	12645 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.332)					4199 Btuh
					Sensible Load All Zones	16844 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
CJ Custom Carpentry

Lake City, FL

1/26/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12645 Btuh
	Sensible Duct Load	4199 Btuh
	Total Sensible Zone Loads	16844 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16844 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1211 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1015 Btuh
	Latent occupant gain (1.0 people @ 200 Btuh per person)	200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2425 Btuh
	TOTAL GAIN	19269 Btuh

EQUIPMENT

1. Central Unit	#	36000 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

System Sizing Calculations - Winter

Project Title:
CJ Custom Carpentry
Building Type: User

Lake City, FL

1/26/2021

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 0.22	Vinyl	0.33	N	16.0		13.2	211 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	53.3		13.2	704 Btuh
3	2, NFRC 0.22	Vinyl	0.33	N	32.0		13.2	422 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	16.0		13.2	211 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	37.3		13.2	493 Btuh
6	2, NFRC 0.22	Vinyl	0.33	S	16.0		13.2	211 Btuh
7	2, NFRC 0.22	Vinyl	0.33	W	5.0		13.2	66 Btuh
	Window Total				175.7(sqft)			2319 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	92		3.45	317 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	72		3.45	248 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	142		3.45	489 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	163		3.45	562 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	263		3.45	907 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	135		3.45	467 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	50		3.45	172 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	89		3.45	307 Btuh
9	Frame - Wood	- Ext	(0.086)	13.0/0.6	129		3.45	445 Btuh
10	Frame - Wood	- Ext	(0.086)	13.0/0.6	18		3.45	62 Btuh
11	Frame - Wood	- Ext	(0.086)	13.0/0.6	46		3.45	159 Btuh
12	Frame - Wood	- Ext	(0.086)	13.0/0.6	18		3.45	62 Btuh
13	Frame - Wood	- Ext	(0.086)	13.0/0.6	126		3.45	435 Btuh
14	Frame - Wood	- Adj	(0.086)	13.0/0.6	196		3.45	676 Btuh
	Wall Total				1539(sqft)			5307 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		24		16.0	384 Btuh
2	Insulated - Garage,	n	(0.400)		20		16.0	320 Btuh
	Door Total				44(sqft)			704Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1728		1.3	2201 Btuh
	Ceiling Total				1728(sqft)			2201Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	193.0 ft(perim.)		47.2	9110 Btuh
	Floor Total				1728 sqft			9110 Btuh
	Envelope Subtotal:							19641 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio		CFM=	
	Natural		0.18	15552	1.00		46.8	2048 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL

Project Title:
CJ Custom Carpentry
Building Type: User

1/26/2021

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.191)	4147 Btuh
All Zones	Sensible Subtotal All Zones	25836 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	25836 Btuh 0 Btuh 25836 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	36000 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