

Residential System Sizing Calculation

Summary

Project Title:
CRB Investment

Ft, White, FL 32024

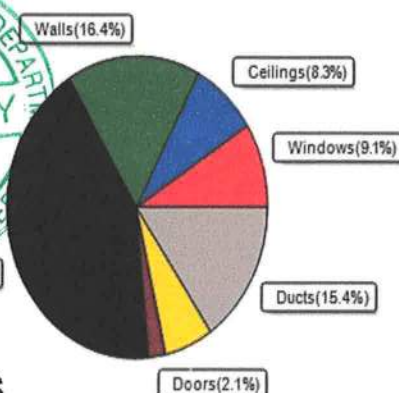
2/5/2021

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	15396 Btuh	Total cooling load calculation	14697 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	194.9 30000	Sensible (SHR = 0.85)	206.6 25500
Heat Pump + Auxiliary(0.0kW)	194.9 30000	Latent	191.1 4500
		Total (Electric Heat Pump)	204.1 30000

WINTER CALCULATIONS

Winter Heating Load (for 1003 sqft)

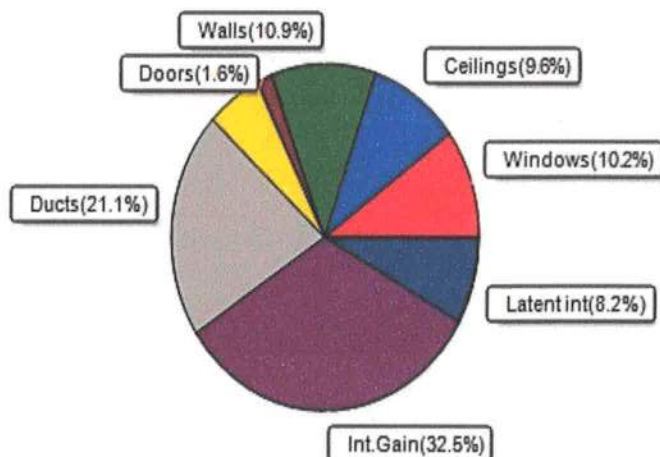
Load component	Load
Window total 106 sqft	1399 Btuh
Wall total 731 sqft	2522 Btuh
Door total 20 sqft	320 Btuh
Ceiling total 1003 sqft	1278 Btuh
Floor total 1003 sqft	6608 Btuh
Infiltration 21 cfm	900 Btuh
Duct loss	2370 Btuh
Subtotal	15396 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	15396 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1003 sqft)

Load component	Load
Window total 106 sqft	1503 Btuh
Wall total 731 sqft	1608 Btuh
Door total 20 sqft	240 Btuh
Ceiling total 1003 sqft	1405 Btuh
Floor total	0 Btuh
Infiltration 15 cfm	321 Btuh
Internal gain	4780 Btuh
Duct gain	2486 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	12343 Btuh
Latent gain(ducts)	623 Btuh
Latent gain(infiltration)	532 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2355 Btuh
TOTAL HEAT GAIN	14697 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

[Signature]
2-5-21

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
CRB Investment

Ft, White, FL 32024

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	0.22, 0.33	No	No	N	1.5ft	1.3ft	40.0	0.0	40.0	11	11	436	Btuh	
2	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	15.0	0.0	15.0	11	27	412	Btuh	
3	2 NFRC	0.22, 0.33	No	No	E	1.5ft	1.3ft	6.0	0.0	6.0	11	27	165	Btuh	
4	2 NFRC	0.22, 0.33	No	No	S	1.5ft	1.3ft	15.0	15.0	0.0	11	13	163	Btuh	
5	2 NFRC	0.22, 0.33	No	No	S	7.5ft	1.3ft	30.0	30.0	0.0	11	13	327	Btuh	
Window Total								106 (sqft)					1503 Btuh		
Walls	Type					U-Value		R-Value		Area(sqft)		HTM		Load	
								Cav/Sheath							
1	Frame - Wood - Ext					0.09		13.0/0.6		174.0		2.2		383 Btuh	
2	Frame - Wood - Ext					0.09		13.0/0.6		325.7		2.2		716 Btuh	
3	Frame - Wood - Ext					0.09		13.0/0.6		78.3		2.2		172 Btuh	
4	Frame - Wood - Ext					0.09		13.0/0.6		82.7		2.2		182 Btuh	
5	Frame - Wood - Ext					0.09		13.0/0.6		70.7		2.2		155 Btuh	
Wall Total								731 (sqft)					1608 Btuh		
Doors	Type							Area (sqft)		HTM		Load			
	1 Insulated - Exterior							20.0		12.0		240 Btuh			
Door Total								20 (sqft)					240 Btuh		
Ceilings	Type/Color/Surface					U-Value		R-Value		Area(sqft)		HTM		Load	
	1 Vented Attic/Light/Metal					0.032		30.0/0.0		1003.0		1.40		1405 Btuh	
Ceiling Total								1003 (sqft)					1405 Btuh		
Floors	Type							R-Value		Size		HTM		Load	
	1 Slab On Grade							0.0		1003 (ft-perimeter)		0.0		0 Btuh	
Floor Total								1003.0 (sqft)					0 Btuh		
Envelope Subtotal:													4757 Btuh		
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.12		8024		1		15.4		321 Btuh	
Internal gain						Occupants		Btuh/occupant		Appliance		Load			
						6		X 230		+		3400		4780 Btuh	
Sensible Envelope Load:													9857 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.252)		2486 Btuh		
Sensible Load All Zones													12343 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
CRB Investment

Climate: FL_GAINESVILLE_REGIONAL_A

Ft, White, FL 32024

2/5/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9857 Btuh
	Sensible Duct Load	2486 Btuh
	Total Sensible Zone Loads	12343 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	12343 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	532 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	623 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2355 Btuh
	TOTAL GAIN	14697 Btuh

EQUIPMENT

1. Central Unit	#	30000 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

Residential Load - Whole House Component Details

Ft, White, FL 32024

Project Title:
CRB Investment
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 0.22	Vinyl	0.33	N	40.0		13.2	528 Btuh
2	2, NFRC 0.22	Vinyl	0.33	E	15.0		13.2	198 Btuh
3	2, NFRC 0.22	Vinyl	0.33	E	6.0		13.2	79 Btuh
4	2, NFRC 0.22	Vinyl	0.33	S	15.0		13.2	198 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	30.0		13.2	396 Btuh
Window Total					106.0(sqft)			1399 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	174		3.45	600 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	326		3.45	1123 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	78		3.45	270 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	83		3.45	285 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	71		3.45	244 Btuh
Wall Total					731(sqft)			2522 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
Door Total					20(sqft)			320Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Metal		(0.032)	30.0/0.0	1003		1.3	1278 Btuh
Ceiling Total					1003(sqft)			1278Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	140.0 ft(perim.)		47.2	6608 Btuh
Floor Total					1003 sqft			6608 Btuh
	Envelope Subtotal:							12127 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.15	8024	1.00	20.5		900 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.182)		2370 Btuh
All Zones	Sensible Subtotal All Zones							15396 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Ft, White, FL 32024

Project Title:
CRB Investment
Building Type: User

2/5/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	15396 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	15396 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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