

Residential System Sizing Calculation

Summary

Project Title:
CRB Investment

Ft, White, FL 32024

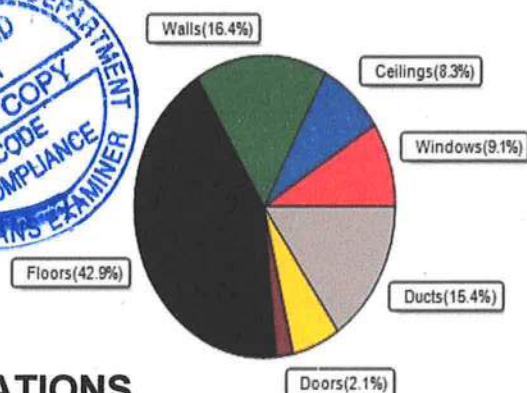
2/5/2021

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)

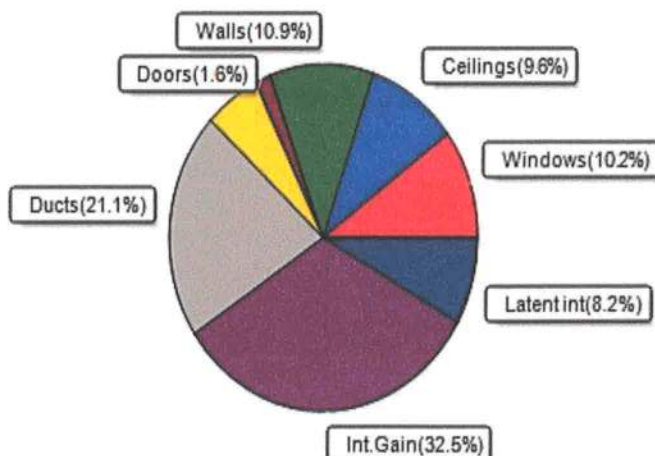
Load component		Load	
Window total	106 sqft	1399 Btuh	
Wall total	731 sqft	2522 Btuh	
Door total	20 sqft	320 Btuh	
Ceiling total	1003 sqft	1278 Btuh	
Floor total	1003 sqft	6608 Btuh	
Infiltration	21 cfm	900 Btuh	
Duct loss		2370 Btuh	
Subtotal		15396 Btuh	
Ventilation	0 cfm	0 Btuh	
TOTAL HEAT LOSS		15396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

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			+		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

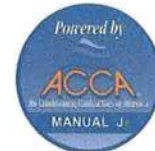
Ft, White, FL 32024

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

*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 Ventilation Sensible Heat Loss Total Heat Loss	15396 Btuh 0 Btuh 15396 Btuh
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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