

67 31

Residential System Sizing Calculation

Summary

Jesus & Tracie Bocanega
128 SW Erin Glen
Lake City, FL 32024-

Project Title:
Bocanegra addition

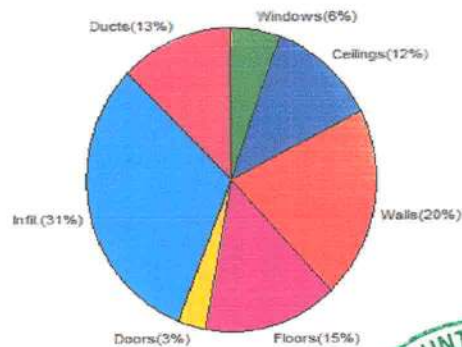
5/31/2013

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(54gr.)			
Winter design temperature(MJ8 99%)	33 F	Summer design temperature(MJ8 99%)	92 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	17 F
Total heating load calculation	11077 Btuh	Total cooling load calculation	13687 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	135.4 15000	Sensible (SHR = 0.75)	111.5 11250
Heat Pump + Auxiliary(0.0kW)	135.4 15000	Latent	104.3 3750
		Total (Electric Heat Pump)	109.6 15000

WINTER CALCULATIONS

Winter Heating Load (for 1031 sqft)

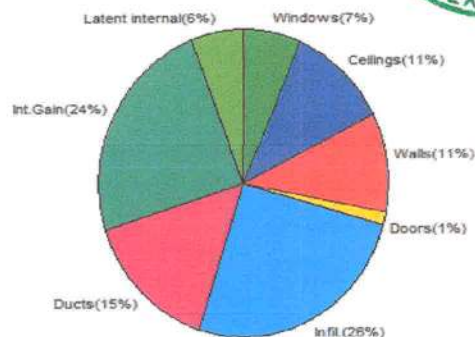
Load component		Load	
Window total	58 sqft	638	Btuh
Wall total	691 sqft	2268	Btuh
Door total	20 sqft	340	Btuh
Ceiling total	1135 sqft	1337	Btuh
Floor total	1032 sqft	1668	Btuh
Infiltration	85 cfm	3430	Btuh
Duct loss		1396	Btuh
Subtotal		11077	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		11077	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1031 sqft)

Load component		Load	
Window total	58 sqft	898	Btuh
Wall total	691 sqft	1440	Btuh
Door total	20 sqft	185	Btuh
Ceiling total	1135 sqft	1518	Btuh
Floor total		0	Btuh
Infiltration	64 cfm	1182	Btuh
Internal gain		3320	Btuh
Duct gain		1550	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		10093	Btuh
Latent gain(ducts)		473	Btuh
Latent gain(infiltration)		2321	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3594	Btuh
TOTAL HEAT GAIN		13687	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 5/31/13

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System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jesus & Tracie Bocanega
128 SW Erin Glen
Lake City, FL 32024-

Project Title:
Bocanegra addition
Building Type: User

5/31/2013

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 F (MJ8 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.50	Metal	0.30	N	12.5		11.1	139 Btuh
2	2, NFRC 0.50	Metal	0.30	S	45.0		11.1	500 Btuh
	Window Total				57.5(sqft)			638 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	228		3.28	747 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	268		3.28	880 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	195		3.28	640 Btuh
	Wall Total				691(sqft)			2268 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, m		(0.460)		20		17.0	340 Btuh
	Door Total				20(sqft)			340Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1135		1.2	1337 Btuh
	Ceiling Total				1135(sqft)			1337Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(0.442)	5.0	102.0 ft(perim.)		16.4	1668 Btuh
	Floor Total				1032 sqft			1668 Btuh
	Envelope Subtotal:							6252 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.62	8248	1.00	84.7		3430 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.144)							1396 Btuh
All Zones	Sensible Subtotal All Zones							11077 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	11077 Btuh 0 Btuh 11077 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Jesus & Tracie Bocanega
128 SW Erin Glen
Lake City, FL 32024-

Project Title:
Bocanegra addition
Building Type: User

5/31/2013

EQUIPMENT

1. Electric Heat Pump	#	15000 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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Jesus & Tracie Bocanega
128 SW Erin Glen
Lake City, FL 32024-

Project Title:
Bocanegra addition

5/31/2013

Reference City: Gainesville, FL

Temperature Difference: 17.0F(MJ8 99%)

Humidity difference: 54gr.

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	0.50, 0.30	No	No	N		1.5ft.	1.0ft.	12.5	0.0	12.5	16	16	195 Btuh	
2	2 NFRC	0.50, 0.30	No	No	S		1.5ft.	1.0ft.	45.0	45.0	0.0	16	20	703 Btuh	
Window Total									58 (sqft)					898 Btuh	
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load
									Cav/Sheath						
1	Frame - Wood - Ext						0.09		13.0/0.0		227.5		2.1		475 Btuh
2	Frame - Wood - Ext						0.09		13.0/0.0		268.0		2.1		559 Btuh
3	Frame - Wood - Ext						0.09		13.0/0.0		195.0		2.1		407 Btuh
Wall Total											691 (sqft)				1440 Btuh
Doors	Type										Area (sqft)		HTM		Load
1	Insulated - Exterior										20.0		9.2		185 Btuh
Door Total											20 (sqft)				185 Btuh
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load
1	Vented Attic/Light/Shingle						0.032		30.0/0.0		1135.0		1.34		1518 Btuh
Ceiling Total											1135 (sqft)				1518 Btuh
Floors	Type								R-Value		Size		HTM		Load
1	Slab On Grade								5.0		1032 (ft-perimeter)		0.0		0 Btuh
Floor Total											1032.0 (sqft)				0 Btuh
Envelope Subtotal:														4041 Btuh	
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load
	Natural						0.46		8248		1		63.5		1182 Btuh
Internal gain							Occupants		Btuh/occupant				Appliance		Load
							4		X 230		+		2400		3320 Btuh
Sensible Envelope Load:														8543 Btuh	
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.181)														1550 Btuh
Sensible Load All Zones														10093 Btuh	

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Manual J Summer Calculations

Residential Load - Component Details (continued)

Jesus & Tracie Bocanega
128 SW Erin Glen
Lake City, FL 32024-

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Bocanegra addition

5/31/2013

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	8543 Btuh
	Sensible Duct Load	1550 Btuh
	Total Sensible Zone Loads	10093 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	10093 Btuh
	Latent infiltration gain (for 54 gr. humidity difference)	2321 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	473 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3594 Btuh
	TOTAL GAIN	13687 Btuh

EQUIPMENT

1. Central Unit	#	15000 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