

Residential System Sizing Calculation

Summary

Project Title:
Guadalupe Soto

, FL

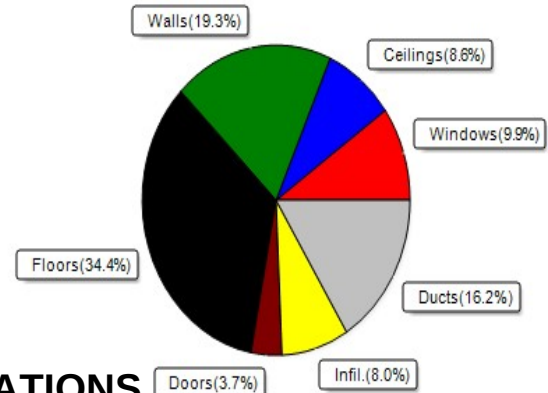
5/26/2020

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	17272 Btuh	Total cooling load calculation	14224 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	104.2 18000	Sensible (SHR = 0.85)	128.3 15300
Heat Pump + Auxiliary(0.0kW)	104.2 18000	Latent	117.6 2700
		Total (Electric Heat Pump)	126.5 18000

WINTER CALCULATIONS

Winter Heating Load (for 1162 sqft)

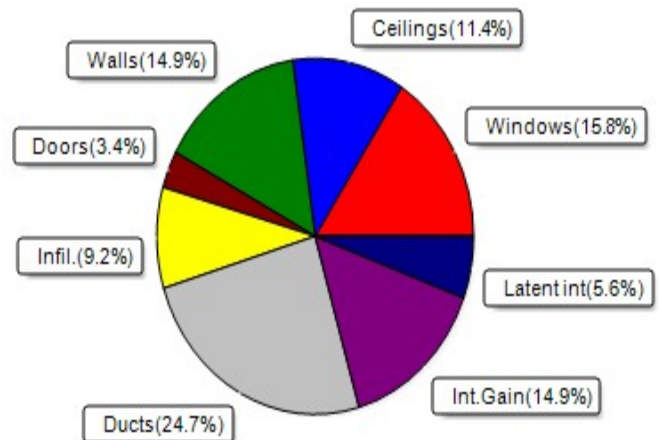
Load component		Load	
Window total	129 sqft	1703	Btuh
Wall total	965 sqft	3328	Btuh
Door total	40 sqft	640	Btuh
Ceiling total	1162 sqft	1480	Btuh
Floor total	1162 sqft	5947	Btuh
Infiltration	31 cfm	1377	Btuh
Duct loss		2797	Btuh
Subtotal		17272	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		17272	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1162 sqft)

Load component		Load	
Window total	129 sqft	2250	Btuh
Wall total	965 sqft	2121	Btuh
Door total	40 sqft	480	Btuh
Ceiling total	1162 sqft	1628	Btuh
Floor total		0	Btuh
Infiltration	24 cfm	491	Btuh
Internal gain		2120	Btuh
Duct gain		2837	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		11927	Btuh
Latent gain(ducts)		683	Btuh
Latent gain(infiltration)		814	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		2297	Btuh
TOTAL HEAT GAIN		14224	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

5-26-20

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Guadalupe Soto

, FL

5/26/2020

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	30.0	0.0	30.0	11	11	327	Btuh	
2	2 NFRC	0.22, 0.33	No	No	NE		1.5ft	1.3ft	30.0	0.0	30.0	11	21	632	Btuh	
3	2 NFRC	0.22, 0.33	No	No	SE		1.5ft	1.3ft	30.0	6.8	23.2	11	22	585	Btuh	
4	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	9.0	9.0	0.0	11	13	98	Btuh	
5	2 NFRC	0.22, 0.33	No	No	SW		1.5ft	1.3ft	15.0	3.4	11.6	11	22	293	Btuh	
6	2 NFRC	0.22, 0.33	No	No	NW		1.5ft	1.3ft	15.0	0.0	15.0	11	21	316	Btuh	
	Window Total								129 (sqft)					2250 Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.6	159.0		2.2		350 Btuh			
2	Frame - Wood - Ext						0.09	13.0/0.6	159.0		2.2		350 Btuh			
3	Frame - Wood - Ext						0.09	13.0/0.6	159.0		2.2		350 Btuh			
4	Frame - Wood - Ext						0.09	13.0/0.6	160.0		2.2		352 Btuh			
5	Frame - Wood - Ext						0.09	13.0/0.6	154.0		2.2		339 Btuh			
6	Frame - Wood - Ext						0.09	13.0/0.6	174.0		2.2		383 Btuh			
	Wall Total								965 (sqft)					2121 Btuh		
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior								20.0		12.0		240 Btuh			
2	Insulated - Exterior								20.0		12.0		240 Btuh			
	Door Total								40 (sqft)					480 Btuh		
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
1	Vented Attic/Light/Shingle						0.032	30.0/0.0	1162.0		1.40		1628 Btuh			
	Ceiling Total								1162 (sqft)					1628 Btuh		
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		1162 (ft-perimeter)		0.0		0 Btuh			
	Floor Total								1162.0 (sqft)					0 Btuh		
	Envelope Subtotal:													6480 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.14		10458		1		23.6		491 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							4		X 230		+		1200		2120 Btuh	
	Sensible Envelope Load:													9091 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.312)													2837 Btuh		
	Sensible Load All Zones													11927 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Guadalupe Soto

, FL

5/26/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	9091 Btuh
	Sensible Duct Load	2837 Btuh
	Total Sensible Zone Loads	11927 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	11927 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	814 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	683 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2297 Btuh
	TOTAL GAIN	14224 Btuh

EQUIPMENT

1. Central Unit	#	18000 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

, FL

Project Title:
Guadalupe Soto
Building Type: User

5/26/2020

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	30.0		13.2	396 Btuh
2	2, NFRC 0.22	Vinyl	0.33	NE	30.0		13.2	396 Btuh
3	2, NFRC 0.22	Vinyl	0.33	SE	30.0		13.2	396 Btuh
4	2, NFRC 0.22	Vinyl	0.33	S	9.0		13.2	119 Btuh
5	2, NFRC 0.22	Vinyl	0.33	SW	15.0		13.2	198 Btuh
6	2, NFRC 0.22	Vinyl	0.33	NW	15.0		13.2	198 Btuh
	Window Total				129.0(sqft)			1703 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	159		3.45	548 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	159		3.45	548 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	159		3.45	548 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	160		3.45	552 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	154		3.45	531 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	174		3.45	600 Btuh
	Wall Total				965(sqft)			3328 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
	Door Total				40(sqft)			640Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1162		1.3	1480 Btuh
	Ceiling Total				1162(sqft)			1480Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	126.0 ft(perim.)		47.2	5947 Btuh
	Floor Total				1162 sqft			5947 Btuh
	Envelope Subtotal:							13098 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	10458	1.00	31.4		1377 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.193)	2797 Btuh
All Zones	Sensible Subtotal All Zones							17272 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Guadalupe Soto
Building Type: User

5/26/2020

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	17272 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	17272 Btuh

EQUIPMENT

1. Electric Heat Pump	#	18000 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