

Residential System Sizing Calculation

Summary

442 SW Tunsil St
Lake City, FL 32024

Project Title:
Adam & Tara Jones

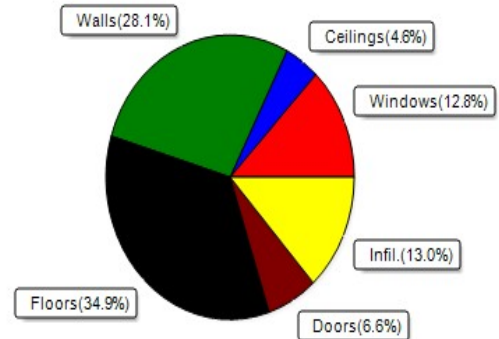
6/29/2021

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			30329	Btuh	
Total cooling load calculation			21813	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	118.7	36000	Sensible (SHR = 0.85)	175.0	30600
Heat Pump + Auxiliary(0.0kW)	118.7	36000	Latent	124.8	5400
			Total (Electric Heat Pump)	165.0	36000

WINTER CALCULATIONS

Winter Heating Load (for 3100 sqft)

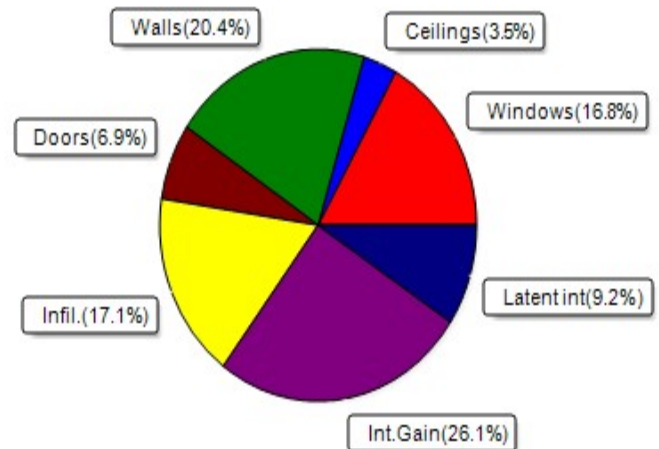
Load component		Load	
Window total	162 sqft	3888	Btuh
Wall total	2400 sqft	8523	Btuh
Door total	126 sqft	2016	Btuh
Ceiling total	3100 sqft	1395	Btuh
Floor total	3100 sqft	10573	Btuh
Infiltration	90 cfm	3935	Btuh
Duct loss		0	Btuh
Subtotal		30329	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		30329	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3100 sqft)

Load component		Load	
Window total	162 sqft	3661	Btuh
Wall total	2400 sqft	4452	Btuh
Door total	126 sqft	1512	Btuh
Ceiling total	3100 sqft	760	Btuh
Floor total		0	Btuh
Infiltration	67 cfm	1402	Btuh
Internal gain		5700	Btuh
Duct gain		0	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		17487	Btuh
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		2326	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		2000	Btuh
Total latent gain		4326	Btuh
TOTAL HEAT GAIN		21813	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

442 SW Tunsil St
Lake City, FL 32024

Project Title:
Adam & Tara Jones

6/29/2021

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	0.27, 0.60	No	No	N		11.5f	4.0ft.	54.0	0.0	54.0	17	17	922	Btuh			
2	2 NFRC	0.27, 0.60	No	No	S		9.5ft.	2.3ft.	72.0	72.0	0.0	17	19	1230	Btuh			
3	2 NFRC	0.27, 0.60	No	No	W		1.5ft.	4.0ft.	36.0	0.0	36.0	17	37	1347	Btuh			
	Excursion													162	Btuh			
	Window Total								162 (sqft)					3661 Btuh				
Walls	Type	U-Value						R-Value		Area(sqft)			HTM		Load			
								Cav/Sheath										
1	Frame - Wood - Ext							0.08		19.0/0.0		627.0			1.7	1037	Btuh	
2	Frame - Wood - Adj							0.08		19.0/0.0		579.0			1.5	850	Btuh	
3	Frame - Steel - Ext							0.10		19.0/0.0		630.0			2.1	1354	Btuh	
4	Frame - Steel - Ext							0.10		19.0/0.0		564.0			2.1	1212	Btuh	
	Wall Total								2400 (sqft)							4452	Btuh	
Doors	Type									Area (sqft)			HTM		Load			
1	Insulated - Exterior									42.0			12.0		504		Btuh	
2	Insulated - Garage									21.0			12.0		252		Btuh	
3	Insulated - Exterior									42.0			12.0		504		Btuh	
4	Insulated - Exterior									21.0			12.0		252		Btuh	
	Door Total								126 (sqft)							1512	Btuh	
Ceilings	Type/Color/Surface	U-Value						R-Value		Area(sqft)			HTM		Load			
1	Cath/Sngl Assem/Light/Metal	0.011						44.0/44.0		3100.0			0.25		760		Btuh	
	Ceiling Total								3100 (sqft)							760	Btuh	
Floors	Type							R-Value		Size			HTM		Load			
1	Slab On Grade							0.0		3100 (ft-perimeter)			0.0		0		Btuh	
	Floor Total								3100.0 (sqft)							0	Btuh	
	Envelope Subtotal:													10386 Btuh				
Infiltration	Type	Average ACH						Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural	0.11						37200		1		67.4		1402		Btuh		
Internal gain		Occupants						Btuh/occupant		Appliance		Load						
		10						X 230		+		3400		5700		Btuh		
	Sensible Envelope Load:													17487 Btuh				
Duct load	Extremelysealed, Supply(R6.0-Cond), Return(R6.0-Condi)													(DGM of 0.000)		0		Btuh
	Sensible Load All Zones													17487 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

442 SW Tunsil St
Lake City, FL 32024

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Adam & Tara Jones

6/29/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	17487 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	17487 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17487 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2326 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4326 Btuh
	TOTAL GAIN	21813 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

Residential Load - Whole House Component Details

442 SW Tunsil St
Lake City, FL 32024

Project Title:
Adam & Tara Jones
Building Type: User

6/29/2021

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 0.27	Vinyl	0.60	N	54.0		24.0	1296 Btuh
2	2, NFRC 0.27	Vinyl	0.60	S	72.0		24.0	1728 Btuh
3	2, NFRC 0.27	Vinyl	0.60	W	36.0		24.0	864 Btuh
	Window Total				162.0(sqft)			3888 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	627		3.09	1938 Btuh
2	Frame - Wood	- Adj	(0.077)	19.0/0.0	579		3.09	1790 Btuh
3	Frame - Steel	- Ext	(0.100)	19.0/0.0	630		4.02	2530 Btuh
4	Frame - Steel	- Ext	(0.100)	19.0/0.0	564		4.02	2265 Btuh
	Wall Total				2400(sqft)			8523 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		42		16.0	672 Btuh
2	Insulated - Garage, n		(0.400)		21		16.0	336 Btuh
3	Insulated - Exterior, n		(0.400)		42		16.0	672 Btuh
4	Insulated - Exterior, n		(0.400)		21		16.0	336 Btuh
	Door Total				126(sqft)			2016Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Cathedral/L/Metal		(0.011)	44.0/44.0	3100		0.4	1395 Btuh
	Ceiling Total				3100(sqft)			1395Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	224.0 ft(perim.)		47.2	10573 Btuh
	Floor Total				3100 sqft			10573 Btuh
	Envelope Subtotal:							26394 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio		CFM=	
	Natural		0.14	37200	1.00		89.9	3935 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh
All Zones	Sensible Subtotal All Zones							30329 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

442 SW Tunsil St
Lake City, FL 32024

Project Title:
Adam & Tara Jones
Building Type: User

6/29/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	30329 Btuh 0 Btuh 30329 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