

Residential System Sizing Calculation

Summary

Project Title:
Norris Voidanoff Project

Lake City, FL

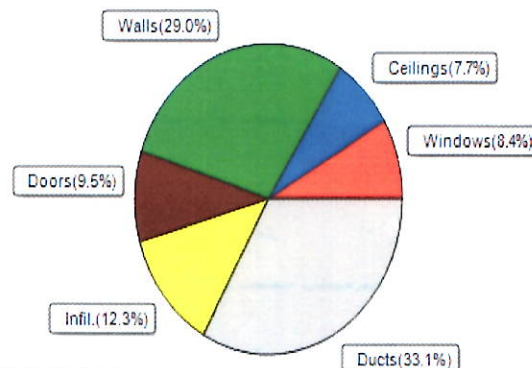
1/23/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(30) Altitude(164 ft.) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (76F) Humidity difference(47gr.)					
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	12327	Btuh	Total cooling load calculation	15784	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	340.7	42000	Sensible (SHR = 0.75)	262.3	31500
Heat Pump + Auxiliary(0.0kW)	340.7	42000	Latent	278.1	10500
			Total (Electric Heat Pump)	266.1	42000

WINTER CALCULATIONS

Winter Heating Load (for 1785 sqft)

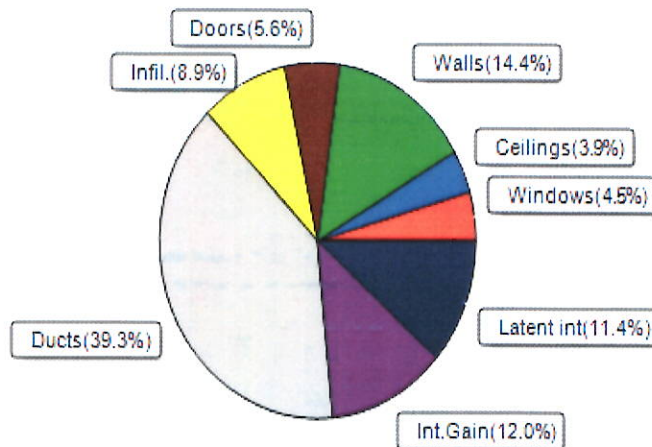
Load component		Load	
Window total	85 sqft	1038	Btuh
Wall total	1140 sqft	3578	Btuh
Door total	68 sqft	1165	Btuh
Ceiling total	1785 sqft	952	Btuh
Floor total	1785 sqft	0	Btuh
Infiltration	37 cfm	1511	Btuh
Duct loss		4083	Btuh
Subtotal		12327	Btuh
Ventilation Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS		12327	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1785 sqft)

Load component		Load	
Window total	85 sqft	703	Btuh
Wall total	1140 sqft	2273	Btuh
Door total	68 sqft	882	Btuh
Ceiling total	1785 sqft	617	Btuh
Floor total		0	Btuh
Infiltration	28 cfm	521	Btuh
Internal gain		1890	Btuh
Duct gain		5122	Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load		0	Btuh
Total sensible gain		12007	Btuh
Latent gain(ducts)		1087	Btuh
Latent gain(infiltration)		890	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1800	Btuh
Total latent gain		3776	Btuh
TOTAL HEAT GAIN		15784	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *[Signature]*

DATE: 1/23/24

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Norris Voidanoff Project
Building Type: User

Lake City, FL

1/23/2024

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.21	Metal	0.33	N	15.0		12.2	183 Btuh
2	2, NFRC 0.21	Metal	0.33	N	9.0		12.2	110 Btuh
3	2, NFRC 0.21	Metal	0.33	E	6.0		12.2	73 Btuh
4	2, NFRC 0.21	Metal	0.33	S	30.0		12.2	366 Btuh
5	2, NFRC 0.21	Metal	0.33	S	25.0		12.2	305 Btuh
	Window Total					85.0(sqft)		1038 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.085)	13.0/1.0	207		3.14	649 Btuh
2	Frame - Wood	- Ext	(0.085)	13.0/1.0	137		3.14	431 Btuh
3	Frame - Wood	- Ext	(0.085)	13.0/1.0	269		3.14	846 Btuh
4	Frame - Wood	- Ext	(0.085)	13.0/1.0	165		3.14	518 Btuh
5	Frame - Wood	- Ext	(0.085)	13.0/1.0	81		3.14	255 Btuh
6	Frame - Wood	- Ext	(0.085)	13.0/1.0	280		3.14	880 Btuh
	Wall Total					1140(sqft)		3578 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		33		17.0	567 Btuh
2	Insulated - Exterior,	n	(0.460)		20		17.0	343 Btuh
3	Insulated - Exterior,	n	(0.460)		15		17.0	255 Btuh
	Door Total					68(sqft)		1165Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.014)	30.0/38.0	1785		0.53	952 Btuh
	Ceiling Total					1785(sqft)		952Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	0.0 ft(perim.)		43.7	0 Btuh
	Floor Total					1785 sqft		0 Btuh
	Envelope Subtotal:							6733 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	14280	1.00	37.3		1511 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.495)		4083 Btuh
All Zones	Sensible Subtotal All Zones							12327 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL

Project Title:
Norris Voidanoff Project
Building Type: User

1/23/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	12327 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	12327 Btuh

EQUIPMENT

1. Electric Heat Pump	#	42000 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

Project Title:
Norris Voidanoff Project

Lake City, FL

1/23/2024

Reference City: Gainesville, FL (Defaults)
Humidity difference: 47gr.

Temperature Difference: 17.0F(MJ8 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.21, 0.33	B-L	No	N		1.5ft	1.0ft	15.0	0.0	15.0	8	8	115	Btuh	
2	2 NFRC	0.21, 0.33	B-L	No	N		1.5ft	1.0ft	9.0	0.0	9.0	8	8	69	Btuh	
3	2 NFRC	0.21, 0.33	B-L	No	E		1.5ft	1.0ft	6.0	1.5	4.5	8	19	97	Btuh	
4	2 NFRC	0.21, 0.33	B-L	No	S		1.5ft	1.0ft	30.0	30.0	0.0	8	9	230	Btuh	
5	2 NFRC	0.21, 0.33	B-L	No	S		5.0ft	1.0ft	25.0	25.0	0.0	8	9	192	Btuh	
Window Total									85 (sqft)					703 Btuh		
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load	
									Cav/Sheath							
1	Frame - Wood - Ext						0.08		13.0/1.0		206.7		2.0		412 Btuh	
2	Frame - Wood - Ext						0.08		13.0/1.0		137.3		2.0		274 Btuh	
3	Frame - Wood - Ext						0.08		13.0/1.0		269.3		2.0		537 Btuh	
4	Frame - Wood - Ext						0.08		13.0/1.0		165.0		2.0		329 Btuh	
5	Frame - Wood - Ext						0.08		13.0/1.0		81.2		2.0		162 Btuh	
6	Frame - Wood - Ext						0.08		13.0/1.0		280.3		2.0		559 Btuh	
Wall Total									1140 (sqft)					2273 Btuh		
Doors	Type										Area (sqft)		HTM		Load	
1	Insulated - Exterior										33.3		12.9		429 Btuh	
2	Insulated - Exterior										20.1		12.9		259 Btuh	
3	Insulated - Exterior										15.0		12.9		193 Btuh	
Door Total									68 (sqft)					882 Btuh		
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load	
1	Vented Attic/DarkShingle						0.014		30.0/38.0		1785.0		0.35		617 Btuh	
Ceiling Total									1785 (sqft)					617 Btuh		
Floors	Type								R-Value		Size		HTM		Load	
1	Slab On Grade								0.0		1785 (ft-perimeter)		0.0		0 Btuh	
Floor Total									1785.0 (sqft)					0 Btuh		
Envelope Subtotal:														4475 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.12		14280			1		28.0		521 Btuh
Internal gain							Occupants		Btuh/occupant			Appliance		Load		
							3		X 230			+		1200		1890 Btuh
Sensible Envelope Load:														6885 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.744)				5122 Btuh	
Sensible Load All Zones														12007 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Norris Voidanoff Project

Lake City, FL

1/23/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	6885 Btuh
	Sensible Duct Load	5122 Btuh
	Total Sensible Zone Loads	12007 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	12007 Btuh
	Latent infiltration gain (for 47 gr. humidity difference)	890 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1087 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	1200 Btuh
	Latent total gain	3776 Btuh
	TOTAL GAIN	15784 Btuh

EQUIPMENT

1. Central Unit	#	42000 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