

Residential System Sizing Calculation

Summary

Salisbury Res
Pinemount Road
Lake City, FL

Project Title:
201304 Salisbury Res

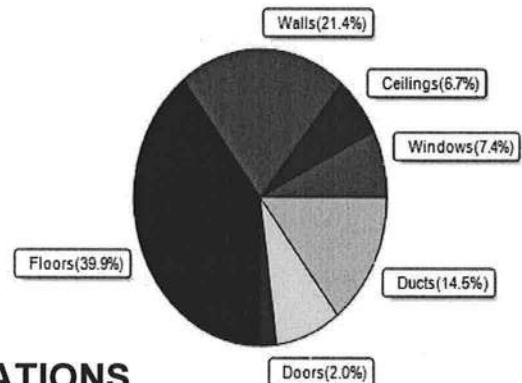
2020-12-01

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	16100 Btuh	Total cooling load calculation	12898 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	105.6 17000	Sensible (SHR = 0.75)	117.8 12750
Heat Pump + Auxiliary(0.0kW)	105.6 17000	Latent	205.1 4250
		Total (Electric Heat Pump)	131.8 17000

WINTER CALCULATIONS

Winter Heating Load (for 1056 sqft)

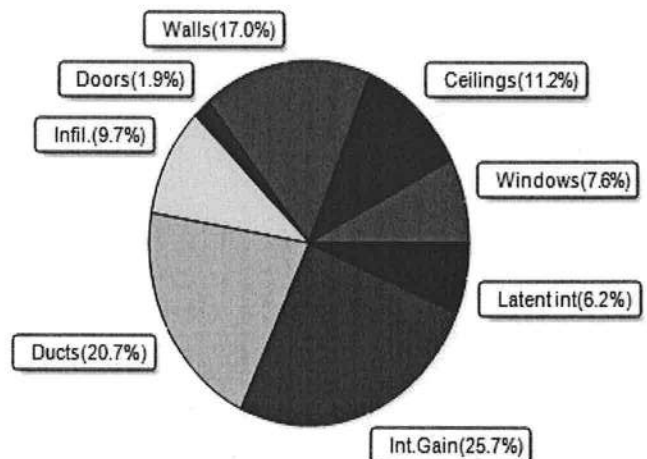
Load component		Load	
Window total	99 sqft	1188	Btuh
Wall total	969 sqft	3440	Btuh
Door total	20 sqft	320	Btuh
Ceiling total	1056 sqft	1072	Btuh
Floor total	1056 sqft	6419	Btuh
Infiltration	30 cfm	1321	Btuh
Duct loss		2340	Btuh
Subtotal		16100	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		16100	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1056 sqft)

Load component		Load	
Window total	99 sqft	981	Btuh
Wall total	969 sqft	2193	Btuh
Door total	20 sqft	240	Btuh
Ceiling total	1056 sqft	1447	Btuh
Floor total		0	Btuh
Infiltration	23 cfm	470	Btuh
Internal gain		3320	Btuh
Duct gain		2174	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		10825	Btuh
Latent gain(ducts)		492	Btuh
Latent gain(infiltration)		781	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		2072	Btuh
TOTAL HEAT GAIN		12898	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2020-12-01**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Salisbury Res
Pinemount Road
Lake City, FL

Project Title:
201304 Salisbury Res
Building Type: User

2020-12-01

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 0.20	Metal	0.30	N	60.0		12.0	720 Btuh
2	2, NFRC 0.20	Metal	0.30	S	30.0		12.0	360 Btuh
3	2, NFRC 0.20	Metal	0.30	S	9.0		12.0	108 Btuh
	Window Total					99.0(sqft)		1188 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	292		3.55	1037 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	192		3.55	682 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	293		3.55	1040 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	192		3.55	682 Btuh
	Wall Total					969(sqft)		3440 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/D/Metal		(0.025)	38.0/0.0	1056		1.0	1072 Btuh
	Ceiling Total					1056(sqft)		1072Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	136.0 ft(perim.)		47.2	6419 Btuh
	Floor Total					1056 sqft		6419 Btuh
	Envelope Subtotal:							12440 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio		CFM=	
	Natural		0.21	8448	1.00		30.2	1321 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Con)					(DLM of 0.170)		2340 Btuh
All Zones	Sensible Subtotal All Zones							16100 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	16100 Btuh 0 Btuh 16100 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Salisbury Res
Pinemount Road
Lake City, FL

Project Title:
201304 Salisbury Res
Building Type: User

2020-12-01

EQUIPMENT

1. Electric Heat Pump	#	17000 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

Salisbury Res
Pinemount Road
Lake City, FL

Project Title:
201304 Salisbury Res

2020-12-01

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	0.20, 0.30	No	No	N		1.5ft	0.5ft	60.0	0.0	60.0	10	10	594 Btuh	
2	2 NFRC	0.20, 0.30	No	No	S		7.5ft	0.5ft	30.0	30.0	0.0	10	11	297 Btuh	
3	2 NFRC	0.20, 0.30	No	No	S		7.5ft	0.5ft	9.0	9.0	0.0	10	11	89 Btuh	
Window Total									99 (sqft)					981 Btuh	
Walls	Type						U-Value		R-Value		Area(sqft)	HTM		Load	
									Cav/Sheath						
1	Frame - Wood - Ext						0.09		13.0/0.0		292.0	2.3		661 Btuh	
2	Frame - Wood - Ext						0.09		13.0/0.0		192.0	2.3		435 Btuh	
3	Frame - Wood - Ext						0.09		13.0/0.0		293.0	2.3		663 Btuh	
4	Frame - Wood - Ext						0.09		13.0/0.0		192.0	2.3		435 Btuh	
Wall Total									969 (sqft)					2193 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/DarkMetal						0.025		38.0/0.0		1056.0	1.37		1447 Btuh	
Ceiling Total									1056 (sqft)					1447 Btuh	
Floors	Type								R-Value		Size	HTM		Load	
1	Slab On Grade								0.0		1056 (ft-perimeter)	0.0		0 Btuh	
Floor Total									1056.0 (sqft)					0 Btuh	
	Envelope Subtotal:													4861 Btuh	
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio	CFM=		Load	
	Natural						0.16		8448		1	22.6		470 Btuh	
Internal gain							Occupants		Btuh/occupant			Appliance		Load	
							4		X 230 +			2400			
	Sensible Envelope Load:													8652 Btuh	
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Condi)													(DGM of 0.251)	2174 Btuh
	Sensible Load All Zones													10825 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Salisbury Res
Pinemount Road
Lake City, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
201304 Salisbury Res

2020-12-01

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	8652 Btuh
	Sensible Duct Load	2174 Btuh
	Total Sensible Zone Loads	10825 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	10825 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	781 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	492 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2072 Btuh
	TOTAL GAIN	12898 Btuh

EQUIPMENT

1. Central Unit	#	17000 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