

Residential System Sizing Calculation

Summary

Chuck & Susan Jenkins
SE Country Club Road
Lake City, FL

Project Title:
Jenkins Res

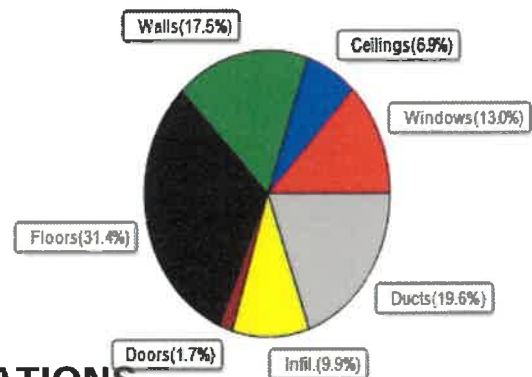
1/6/2021

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 25540 Btuh			Total cooling load calculation 17690 Btuh		
Submitted heating capacity % of calc Btuh			Submitted cooling capacity % of calc Btuh		
Total (Electric Heat Pump) 100.0 25540			Sensible (SHR = 0.70) 87.1 12383		
Heat Pump + Auxiliary(0.0kW) 100.0 25540			Latent 152.6 5307		
			Total (Electric Heat Pump) 100.0 17690		

WINTER CALCULATIONS

Winter Heating Load (for 1650 sqft)

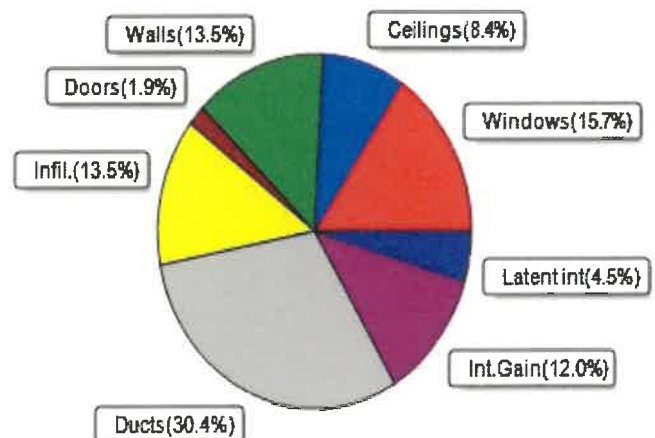
Load component		Load
Window total	230 sqft	3312 Btuh
Wall total	1446 sqft	4470 Btuh
Door total	24 sqft	442 Btuh
Ceiling total	1732 sqft	1758 Btuh
Floor total	1650 sqft	8024 Btuh
Infiltration	58 cfm	2518 Btuh
Duct loss		5017 Btuh
Subtotal		25540 Btuh
Ventilation	0 cfm	0 Btuh
TOTAL HEAT LOSS		25540 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1650 sqft)

Load component		Load
Window total	230 sqft	2783 Btuh
Wall total	1446 sqft	2391 Btuh
Door total	24 sqft	331 Btuh
Ceiling total	1732 sqft	1495 Btuh
Floor total		0 Btuh
Infiltration	43 cfm	897 Btuh
Internal gain		2120 Btuh
Duct gain		4194 Btuh
Sens. Ventilation	0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		14211 Btuh
Latent gain(ducts)		1190 Btuh
Latent gain(infiltration)		1489 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		800 Btuh
Total latent gain		3479 Btuh
TOTAL HEAT GAIN		17690 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE:

[Signature]
1/6/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Chuck & Susan Jenkins
SE Country Club Road
Lake City, FL

Project Title:
Jenkins Res
Building Type: User

1/6/2021

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=
1	2, NFRC 0.25	Vinyl	0.36	N	18.0		14.4
2	2, NFRC 0.25	Vinyl	0.36	N	8.0		14.4
3	2, NFRC 0.25	Vinyl	0.36	S	108.0		14.4
4	2, NFRC 0.25	TIM	0.36	S	96.0		14.4
	Window Total				230.0(sqft)		
							3312 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	524		3.09
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	300		3.09
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	346		3.09
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	276		3.09
	Wall Total				1446(sqft)		
							4470 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=
1	Insulated - Exterior, n		(0.460)		24		18.4
	Door Total				24(sqft)		
							442Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1732		1.0
	Ceiling Total				1732(sqft)		
							1758Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=
1	Slab On Grade		(1.180)	0.0	170.0 ft(perim.)		47.2
	Floor Total				1650 sqft		
							8024 Btuh
							8024 Btuh
							Envelope Subtotal:
							18005 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.21	16500	1.00	57.5	
							2518 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.244)						
							5017 Btuh
All Zones	Sensible Subtotal All Zones						
							25540 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Chuck & Susan Jenkins
SE Country Club Road
Lake City, FL

Project Title:
Jenkins Res
Building Type: User

1/6/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	25540 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	25540 Btuh

EQUIPMENT

1. Electric Heat Pump	#	25540 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

Chuck & Susan Jenkins
SE Country Club Road
Lake City, FL

Project Title:
Jenkins Res

1/6/2021

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	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	18.0	0.0	18.0	12	12	218	Btuh	
2	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	8.0	0.0	8.0	12	12	97	Btuh	
3	2 NFRC	0.25, 0.36	No	No	S		12.5f	1.0ft.	108.0	108.0	0.0	12	14	1307	Btuh	
4	2 NFRC	0.25, 0.36	No	No	S		11.5f	1.0ft.	96.0	96.0	0.0	12	14	1161	Btuh	
	Window Total								230 (sqft)					2783 Btuh		
Walls	Type	U-Value						R-Value		Area(sqft)		HTM		Load		
								Cav/Sheath								
1	Frame - Wood - Ext	0.08						19.0/0.0		524.0		1.7		867 Btuh		
2	Frame - Wood - Ext	0.08						19.0/0.0		300.0		1.7		496 Btuh		
3	Frame - Wood - Ext	0.08						19.0/0.0		346.0		1.7		572 Btuh		
4	Frame - Wood - Ext	0.08						19.0/0.0		276.0		1.7		456 Btuh		
	Wall Total								1446 (sqft)					2391 Btuh		
Doors	Type									Area (sqft)		HTM		Load		
1	Insulated - Exterior									24.0		13.8		331 Btuh		
	Door Total								24 (sqft)					331 Btuh		
Ceilings	Type/Color/Surface	U-Value						R-Value		Area(sqft)		HTM		Load		
1	Vented Attic/Light/Shingle/RB	0.025						38.0/0.0		1732.0		0.86		1495 Btuh		
	Ceiling Total								1732 (sqft)					1495 Btuh		
Floors	Type							R-Value		Size		HTM		Load		
1	Slab On Grade							0.0		1650 (ft-perimeter)		0.0		0 Btuh		
	Floor Total								1650.0 (sqft)					0 Btuh		
	Envelope Subtotal:													7000 Btuh		
Infiltration	Type	Average ACH						Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural	0.16						16500		1		43.1		897 Btuh		
Internal gain		Occupants						Btuh/occupant		Appliance		Load				
		4						X 230		+		1200		2120 Btuh		
	Sensible Envelope Load:													10017 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)	(DGM of 0.419)													4194 Btuh	
		Sensible Load All Zones													14211 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Chuck & Susan Jenkins
SE Country Club Road
Lake City, FL

Project Title:
Jenkins Res

Climate:FL_GAINESVILLE_REGIONAL_A

1/6/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	10017 Btuh
	Sensible Duct Load	4194 Btuh
	Total Sensible Zone Loads	14211 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14211 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1489 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1190 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3479 Btuh
	TOTAL GAIN	17690 Btuh

EQUIPMENT

1. Central Unit	#	17690 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(1/2))
(Ornt - compass orientation)



Version 8