

Residential System Sizing Calculation

Summary

Project Title:
Kierra Thomas

, FL

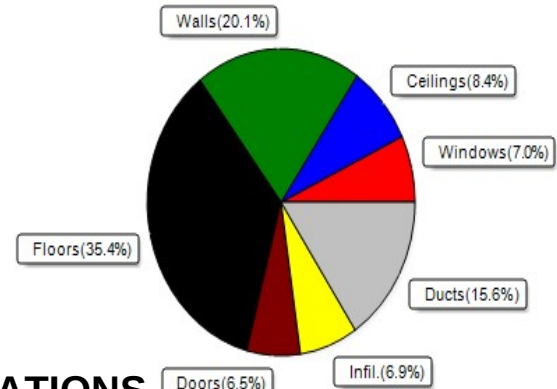
8/29/2023

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	24510 Btuh	Total cooling load calculation	21862 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	146.9 36000	Sensible (SHR = 0.85)	164.1 30600
Heat Pump + Auxiliary(0.0kW)	146.9 36000	Latent	168.1 5400
		Total (Electric Heat Pump)	164.7 36000

WINTER CALCULATIONS

Winter Heating Load (for 1607 sqft)

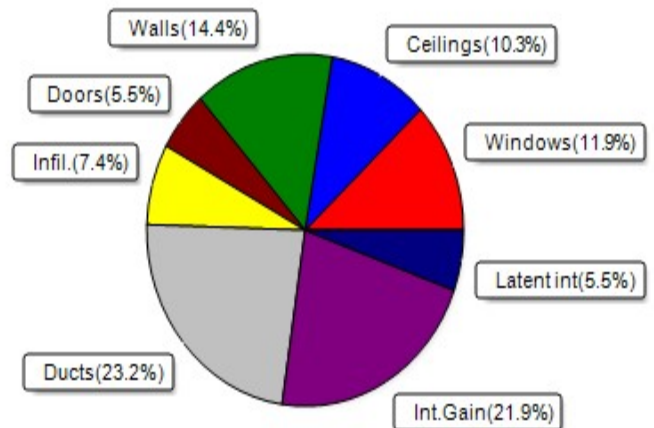
Load component	Load
Window total 165 sqft	1716 Btuh
Wall total 1391 sqft	4939 Btuh
Door total 100 sqft	1600 Btuh
Ceiling total 1607 sqft	2047 Btuh
Floor total 1607 sqft	8685 Btuh
Infiltration 39 cfm	1699 Btuh
Duct loss	3824 Btuh
Subtotal	24510 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	24510 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1607 sqft)

Load component	Load
Window total 165 sqft	2610 Btuh
Wall total 1391 sqft	3148 Btuh
Door total 100 sqft	1200 Btuh
Ceiling total 1607 sqft	2252 Btuh
Floor total	0 Btuh
Infiltration 29 cfm	605 Btuh
Internal gain	4780 Btuh
Duct gain	4055 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	18651 Btuh
Latent gain(ducts)	1007 Btuh
Latent gain(infiltration)	1004 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3212 Btuh
TOTAL HEAT GAIN	21862 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

8-29-23

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Kierra Thomas

, FL

8/29/2023

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 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	0.20, 0.26	No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	9	9	274	Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	9.0	0.0	9.0	9	9	82	Btuh
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	30.0	0.0	30.0	9	24	727	Btuh
4	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	3.0	0.0	3.0	9	24	73	Btuh
5	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137	Btuh
6	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137	Btuh
7	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137	Btuh
8	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	8.0	8.0	0.0	9	11	73	Btuh
9	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	40.0	0.0	40.0	9	24	969	Btuh
Window Total								165 (sqft)					2610 Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load	
								Cav/Sheath						
1	Frame - Wood - Ext						0.09	13.0/0.0	93.0		2.3		210 Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0	92.0		2.3		208 Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0	75.0		2.3		170 Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0	184.0		2.3		416 Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0	264.0		2.3		598 Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0	117.0		2.3		265 Btuh	
7	Frame - Wood - Ext						0.09	13.0/0.0	36.0		2.3		81 Btuh	
8	Frame - Wood - Ext						0.09	13.0/0.0	81.0		2.3		183 Btuh	
9	Frame - Wood - Ext						0.09	13.0/0.0	27.0		2.3		61 Btuh	
10	Frame - Wood - Ext						0.09	13.0/0.0	26.0		2.3		59 Btuh	
11	Frame - Wood - Ext						0.09	13.0/0.0	27.0		2.3		61 Btuh	
12	Frame - Wood - Ext						0.09	13.0/0.0	151.0		2.3		342 Btuh	
13	Frame - Wood - Ext						0.09	13.0/0.0	218.0		2.3		493 Btuh	
Wall Total								1391 (sqft)					3148 Btuh	
Doors	Type								Area (sqft)		HTM		Load	
1	Insulated - Exterior								40.0		12.0		480 Btuh	
2	Insulated - Exterior								20.0		12.0		240 Btuh	
3	Insulated - Exterior								40.0		12.0		480 Btuh	
Door Total								100 (sqft)					1200 Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load	
1	Vented Attic/Med/Shingle						0.032	30.0/0.0	1607.0		1.40		2252 Btuh	
Ceiling Total								1607 (sqft)					2252 Btuh	
Floors	Type						R-Value		Size		HTM		Load	
1	Slab On Grade						0.0		1607 (ft-perimeter)		0.0		0 Btuh	
Floor Total								1607.0 (sqft)					0 Btuh	
	Envelope Subtotal:												9210 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Kierra Thomas

, FL

8/29/2023

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 14463	Wall Ratio 1	CFM= 29.1	Load 605 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	3400	Load 4780 Btuh
	Sensible Envelope Load:					14595 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.278)					4055 Btuh
	Sensible Load All Zones					18651 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
Kierra Thomas

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

8/29/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14595 Btuh
	Sensible Duct Load	4055 Btuh
	Total Sensible Zone Loads	18651 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18651 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1004 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1007 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3212 Btuh
	TOTAL GAIN	21862 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

Project Title:
Kierra Thomas
Building Type: User

, FL

8/29/2023

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 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 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	9.0		10.4	94 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4	312 Btuh
4	2, NFRC 0.20	Vinyl	0.26	E	3.0		10.4	31 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
7	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	8.0		10.4	83 Btuh
9	2, NFRC 0.20	Vinyl	0.26	W	40.0		10.4	416 Btuh
	Window Total				165.0(sqft)			1716 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	330 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	327 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	75		3.55	266 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	184		3.55	653 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	264		3.55	937 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	117		3.55	415 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	81		3.55	288 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	96 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	26		3.55	92 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	96 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	151		3.55	536 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	218		3.55	774 Btuh
	Wall Total				1391(sqft)			4939 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
	Door Total				100(sqft)			1600Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/M/Shing		(0.032)	30.0/0.0	1607		1.3	2047 Btuh
	Ceiling Total				1607(sqft)			2047Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	184.0 ft(perim.)		47.2	8685 Btuh
	Floor Total				1607 sqft			8685 Btuh
	Envelope Subtotal:							18986 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Kierra Thomas
Building Type: User

8/29/2023

Infiltration	Type Natural	Wholehouse ACH 0.16	Volume(cuft) 14463	Wall Ratio 1.00	CFM= 38.7	1699 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.185)					3824 Btuh
All Zones	Sensible Subtotal All Zones					24510 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	24510 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	24510 Btuh

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