

Residential System Sizing Calculation

Summary

Project Title:
Turkey Run Lot

Lake City, FL

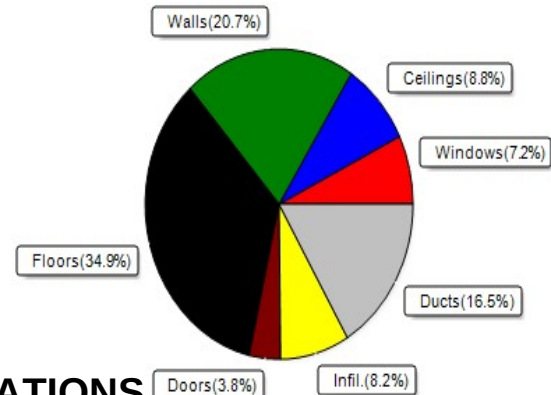
10/6/2020

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	25439 Btuh	Total cooling load calculation	19167 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	141.5 36000	Sensible (SHR = 0.85)	194.8 30600
Heat Pump + Auxiliary(0.0kW)	141.5 36000	Latent	156.2 5400
		Total (Electric Heat Pump)	187.8 36000

WINTER CALCULATIONS

Winter Heating Load (for 1753 sqft)

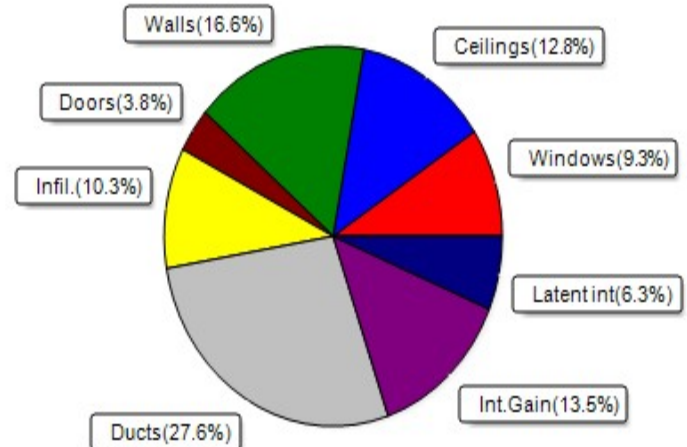
Load component	Load
Window total 139 sqft	1835 Btuh
Wall total 1525 sqft	5259 Btuh
Door total 60 sqft	960 Btuh
Ceiling total 1753 sqft	2233 Btuh
Floor total 1753 sqft	8874 Btuh
Infiltration 47 cfm	2078 Btuh
Duct loss	4201 Btuh
Subtotal	25439 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	25439 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1753 sqft)

Load component	Load
Window total 139 sqft	1780 Btuh
Wall total 1525 sqft	3180 Btuh
Door total 60 sqft	720 Btuh
Ceiling total 1753 sqft	2456 Btuh
Floor total	0 Btuh
Infiltration 36 cfm	740 Btuh
Internal gain	2580 Btuh
Duct gain	4254 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	15710 Btuh
Latent gain(ducts)	1029 Btuh
Latent gain(infiltration)	1228 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	3457 Btuh
TOTAL HEAT GAIN	19167 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____ 2-4-21

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Turkey Run Lot

Lake City, FL

10/6/2020

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	0.22, 0.33	No	No	N		1.5ft	1.3ft	30.0	0.0	30.0	11	11	327	Btuh	
2	2 NFRC	0.22, 0.33	No	No	N		9.5ft	1.3ft	18.0	0.0	18.0	11	11	196	Btuh	
3	2 NFRC	0.22, 0.33	No	No	N		1.5ft	1.3ft	15.0	0.0	15.0	11	11	163	Btuh	
4	2 NFRC	0.22, 0.33	No	No	E		1.5ft	1.3ft	4.0	0.0	4.0	11	27	110	Btuh	
5	2 NFRC	0.22, 0.33	No	No	S		1.5ft	1.3ft	30.0	30.0	0.0	11	13	327	Btuh	
6	2 NFRC	0.22, 0.33	No	No	S		7.5ft	1.3ft	30.0	30.0	0.0	11	13	327	Btuh	
7	2 NFRC	0.22, 0.33	No	No	W		1.5ft	1.3ft	12.0	0.0	12.0	11	27	330	Btuh	
	Window Total								139 (sqft)					1780 Btuh		
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load		
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.6	180.0			2.2		396 Btuh		
2	Frame - Wood - Ext						0.09	13.0/0.6	168.7			2.2		371 Btuh		
3	Frame - Wood - Ext						0.09	13.0/0.6	114.0			2.2		251 Btuh		
4	Frame - Wood - Ext						0.09	13.0/0.6	314.0			2.2		690 Btuh		
5	Frame - Wood - Ext						0.09	13.0/0.6	99.0			2.2		218 Btuh		
6	Frame - Wood - Ext						0.09	13.0/0.6	153.3			2.2		337 Btuh		
7	Frame - Wood - Ext						0.09	13.0/0.6	18.0			2.2		40 Btuh		
8	Frame - Wood - Ext						0.09	13.0/0.6	169.5			2.2		373 Btuh		
9	Frame - Wood - Adj						0.09	13.0/0.6	308.5			1.6		505 Btuh		
	Wall Total								1525 (sqft)					3180 Btuh		
Doors	Type									Area (sqft)	HTM		Load			
1	Insulated - Exterior									20.0	12.0		240 Btuh			
2	Insulated - Exterior									20.0	12.0		240 Btuh			
3	Insulated - Garage									20.0	12.0		240 Btuh			
	Door Total								60 (sqft)					720 Btuh		
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load		
1	Vented Attic/Light/Shingle						0.032	30.0/0.0	1753.0			1.40		2456 Btuh		
	Ceiling Total								1753 (sqft)					2456 Btuh		
Floors	Type									R-Value	Size		HTM	Load		
1	Slab On Grade									0.0	1753 (ft-perimeter)		0.0	0 Btuh		
	Floor Total								1753.0 (sqft)					0 Btuh		
	Envelope Subtotal:													8136 Btuh		
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.14		15777		1		35.6		740 Btuh	
Internal gain							Occupants		Btuh/occupant			Appliance		Load		
							6		X 230			+		2580 Btuh		
	Sensible Envelope Load:													11456 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.371)			4254 Btuh		
	Sensible Load All Zones													15710 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Turkey Run Lot

Lake City, FL

10/6/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11456 Btuh
	Sensible Duct Load	4254 Btuh
	Total Sensible Zone Loads	15710 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15710 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1228 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1029 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3457 Btuh
	TOTAL GAIN	19167 Btuh

EQUIPMENT

1. Central Unit	#	36000 Btuh
-----------------	---	------------

*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

Lake City, FL

Project Title:
Turkey Run Lot
Building Type: User

10/6/2020

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 0.22	Vinyl	0.33	N	30.0		13.2	396 Btuh
2	2, NFRC 0.22	Vinyl	0.33	N	18.0		13.2	238 Btuh
3	2, NFRC 0.22	Vinyl	0.33	N	15.0		13.2	198 Btuh
4	2, NFRC 0.22	Vinyl	0.33	E	4.0		13.2	53 Btuh
5	2, NFRC 0.22	Vinyl	0.33	S	30.0		13.2	396 Btuh
6	2, NFRC 0.22	Vinyl	0.33	S	30.0		13.2	396 Btuh
7	2, NFRC 0.22	Vinyl	0.33	W	12.0		13.2	158 Btuh
	Window Total				139.0(sqft)			1835 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	180		3.45	621 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	169		3.45	582 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	114		3.45	393 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	314		3.45	1083 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	99		3.45	341 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	153		3.45	529 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	18		3.45	62 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	170		3.45	585 Btuh
9	Frame - Wood	- Adj	(0.086)	13.0/0.6	309		3.45	1064 Btuh
	Wall Total				1525(sqft)			5259 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Garage, n		(0.400)		20		16.0	320 Btuh
	Door Total				60(sqft)			960Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.032)	30.0/0.0	1753		1.3	2233 Btuh
	Ceiling Total				1753(sqft)			2233Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	188.0 ft(perim.)		47.2	8874 Btuh
	Floor Total				1753 sqft			8874 Btuh
	Envelope Subtotal:							19160 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio		CFM=	
	Natural		0.18	15777	1.00		47.4	2078 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.198)	4201 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL

Project Title:
Turkey Run Lot
Building Type: User

10/6/2020

All Zones	Sensible Subtotal All Zones	25439 Btuh
------------------	------------------------------------	-------------------

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	25439 Btuh 0 Btuh 25439 Btuh
---------------------------	--	------------------------------------

EQUIPMENT

1. Electric Heat Pump	#	36000 Btuh
-----------------------	---	------------

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