Residential System Sizing Calculation

Summary

Yasmanis Reyes
NW Crews Glen
, FL 32024

Project Title:
Yasmanis Reyes_

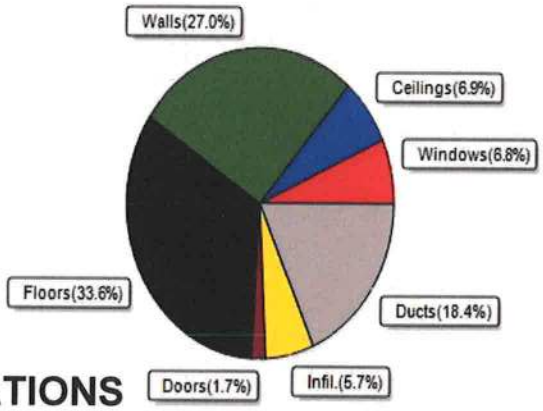
6/22/2023

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	**21945**	**Btuh**	**Total cooling load calculation**	**16901**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	21945	Sensible (SHR = 0.70)	85.2	11831
Heat Pump + Auxiliary(0.0kW)	100.0	21945	Latent	168.3	5070
			Total (Electric Heat Pump)	100.0	16901

WINTER CALCULATIONS

Winter Heating Load (for 1365 sqft)

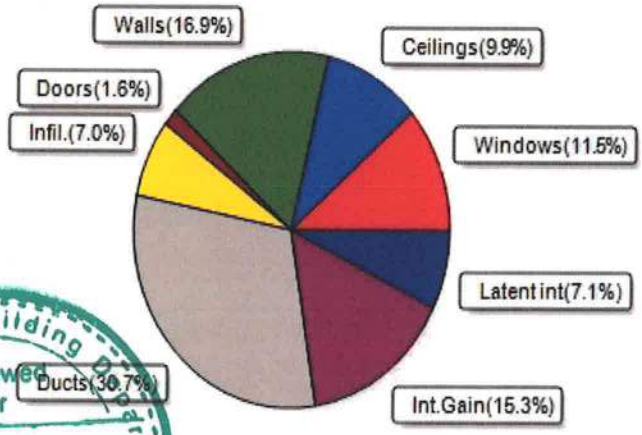
Load component			Load	
Window total	104	sqft	1493	Btuh
Wall total	1124	sqft	5917	Btuh
Door total	20	sqft	368	Btuh
Ceiling total	1501	sqft	1524	Btuh
Floor total	1365	sqft	7363	Btuh
Infiltration	29	cfm	1249	Btuh
Duct loss			4031	Btuh
Subtotal			**21945**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**21945**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1365 sqft)

Load component			Load	
Window total	104	sqft	1943	Btuh
Wall total	1124	sqft	2855	Btuh
Door total	20	sqft	276	Btuh
Ceiling total	1501	sqft	1676	Btuh
Floor total			0	Btuh
Infiltration	21	cfm	445	Btuh
Internal gain			2580	Btuh
Duct gain			4112	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**13888**	**Btuh**
Latent gain(ducts)			1075	Btuh
Latent gain(infiltration)			739	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**3013**	**Btuh**
TOTAL HEAT GAIN			**16901**	**Btuh**



EnergyGauge® System Sizing
PREPARED BY: Wm C Ty
DATE: 6 / 22 / 2023

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Yasmanis Reyes
NW Crews Glen
, FL 32024

Project Title:
Yasmanis Reyes_
Building Type: User

6/22/2023

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 0.25	Vinyl	0.36	W	30.0	14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	15.0	14.4	216 Btuh
3	2, NFRC 0.25	Vinyl	0.36	S	2.7	14.4	38 Btuh
4	2, NFRC 0.25	Vinyl	0.36	E	6.0	14.4	86 Btuh
5	2, NFRC 0.25	TIM	0.36	E	20.0	14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	30.0	14.4	432 Btuh
	Window Total				103.7(sqft)		1493 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	190	5.26	1000 Btuh
2	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	366	5.26	1928 Btuh
3	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	122	5.26	642 Btuh
4	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	43	5.26	225 Btuh
5	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	92	5.26	484 Btuh
6	Conc Blk,Hollow - Ext		(0.132)	5.0/0.0	311	5.26	1638 Btuh
	Wall Total				1124(sqft)		5917 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)	20	18.4	368 Btuh
	Door Total			20(sqft)		368Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Flat ceil/M/Shing	(0.025)	38.0/0.0	1501	1.0	1524 Btuh
	Ceiling Total			1501(sqft)		1524Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	156.0 ft(perim.)	47.2	7363 Btuh
	Floor Total			1365 sqft		7363 Btuh

	Envelope Subtotal:	16665 Btuh

Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.16	10920	1.00	28.5	1249 Btuh

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.225)	4031 Btuh
All Zones	**Sensible Subtotal All Zones**	**21945 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Yasmanis Reyes
NW Crews Glen
, FL 32024

Project Title:
Yasmanis Reyes_
Building Type: User

6/22/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	21945 Btuh 0 Btuh 21945 Btuh

EQUIPMENT

1. Electric Heat Pump	#	21945 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)

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System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Yasmanis Reyes
NW Crews Glen
, FL 32024

Project Title:
Yasmanis Reyes_

6/22/2023

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* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0.25,	0.36	No	No	W	1.5ft.	0.5ft.	30.0	4.5	25.5	12	31	844 Btuh
2	2 NFRC	0.25,	0.36	No	No	S	1.5ft.	0.5ft.	15.0	15.0	0.0	12	14	181 Btuh
3	2 NFRC	0.25,	0.36	No	No	S	1.5ft.	0.5ft.	2.7	2.7	0.0	12	14	32 Btuh
4	2 NFRC	0.25,	0.36	No	No	E	1.5ft.	0.5ft.	6.0	1.5	4.5	12	31	158 Btuh
5	2 NFRC	0.25,	0.36	No	No	E	6.8ft.	0.5ft.	20.0	15.5	4.5	12	31	326 Btuh
6	2 NFRC	0.25,	0.36	No	No	N	1.5ft.	0.5ft.	30.0	0.0	30.0	12	12	363 Btuh
	Excursion													38 Btuh
	Window Total								104 (sqft)					1943 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	190.0	2.5	482 Btuh
2	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	366.3	2.5	930 Btuh
3	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	122.0	2.5	310 Btuh
4	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	42.7	2.5	108 Btuh
5	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	92.0	2.5	234 Btuh
6	Concrete Blk,Hollow- Ext	0.13	5.0/0.0	311.3	2.5	791 Btuh
	Wall Total			1124 (sqft)		2855 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20.0	13.8	276 Btuh
	Door Total	20 (sqft)		276 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/Med/Shingle/RB	0.025	38.0/0.0	1501.0	1.12	1676 Btuh
	Ceiling Total			1501 (sqft)		1676 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1365 (ft-perimeter)	0.0	0 Btuh
	Floor Total		1365.0 (sqft)		0 Btuh

	Envelope Subtotal:	6750 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	10920	1	21.4	445 Btuh

Internal gain	Occupants	Btuh/occupant		Appliance	Load
	6	X 230	+	1200	2580 Btuh

	Sensible Envelope Load:	9775 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.421)	4112 Btuh
	Sensible Load All Zones	**13888 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Yasmanis Reyes
NW Crews Glen
, FL 32024

Project Title: Yasmanis Reyes_

Climate:FL_GAINESVILLE_REGIONAL_A

6/22/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**9775 Btuh**
	Sensible Duct Load	4112 Btuh
	Total Sensible Zone Loads	**13888 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**13888 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	739 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1075 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**3013 Btuh**
	TOTAL GAIN	**16901 Btuh**

EQUIPMENT

1. Central Unit	#	16901 Btuh

*Key: Window types (Panes - 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)

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