Residential System Sizing Calculation

Summary

Project Title:
Buddy Register

, FL

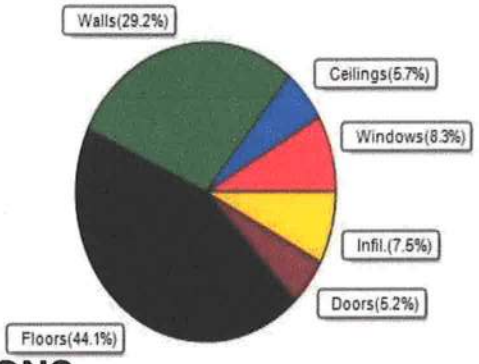
1/7/2022

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	**12410**	**Btuh**	**Total cooling load calculation**	**9994**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	193.4	24000	Sensible (SHR = 0.85)	236.1	20400
Heat Pump + Auxiliary(0.0kW)	193.4	24000	Latent	266.2	3600
			Total (Electric Heat Pump)	240.1	24000

WINTER CALCULATIONS

Winter Heating Load (for 792 sqft)

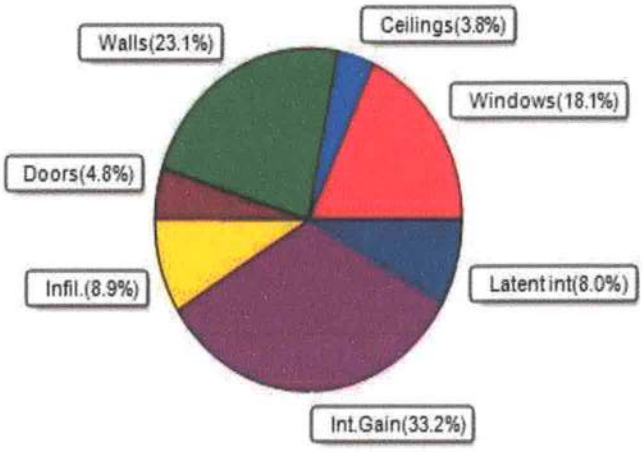
Load component			Load	
Window total	99	sqft	1030	Btuh
Wall total	1021	sqft	3625	Btuh
Door total	40	sqft	640	Btuh
Ceiling total	792	sqft	706	Btuh
Floor total	792	sqft	5475	Btuh
Infiltration	21	cfm	935	Btuh
Duct loss			0	Btuh
Subtotal			**12410**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**12410**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 792 sqft)

Load component			Load	
Window total	99	sqft	1814	Btuh
Wall total	1021	sqft	2311	Btuh
Door total	40	sqft	480	Btuh
Ceiling total	792	sqft	385	Btuh
Floor total			0	Btuh
Infiltration	16	cfm	333	Btuh
Internal gain			3320	Btuh
Duct gain			0	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**8642**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			552	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			800	Btuh
Total latent gain			**1352**	**Btuh**
TOTAL HEAT GAIN			**9994**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 1-6-22

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Buddy Register

, FL

1/7/2022

Reference City: Gainesville, FL Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

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	0.20, 0.26		No	No	E	1.5ft	2.3ft	30.0	0.0	30.0	9	24	727 Btuh
2	2 NFRC	0.20, 0.26		No	No	S	1.5ft	2.3ft	45.0	45.0	0.0	9	11	412 Btuh
3	2 NFRC	0.20, 0.26		No	No	W	1.5ft	2.3ft	15.0	0.0	15.0	9	24	363 Btuh
4	2 NFRC	0.20, 0.26		No	No	W	1.5ft	2.3ft	9.0	0.0	9.0	9	24	218 Btuh
	Excursion													94 Btuh
	Window Total								99 (sqft)					1814 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.09	13.0/0.0	340.0	2.3	770 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	190.0	2.3	430 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	295.0	2.3	668 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	196.0	2.3	444 Btuh
	Wall Total			1021 (sqft)		2311 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
	Door Total	40 (sqft)		480 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Cath/Sngl Assem/Light/Shingle	0.022	44.0/0.0	792.0	0.49	385 Btuh
	Ceiling Total			792 (sqft)		385 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	792 (ft-perimeter)	0.0	0 Btuh
	Floor Total		792.0 (sqft)		0 Btuh
			Envelope Subtotal:		4989 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	7920	1	16.0	333 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		4	X 230	+	2400	3320 Btuh
				Sensible Envelope Load:		8642 Btuh
Duct load	Extremely sealed, Supply(R8.0-Condi), Return(R8.0-Condi)			(DGM of 0.000)		0 Btuh
				Sensible Load All Zones		**8642 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Buddy Register
Climate:FL_GAINESVILLE_REGIONAL_A

, FL

1/7/2022

WHOLE HOUSE TOTALS

	Sensible Envelope Load All Zones	**8642 Btuh**
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	**8642 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
Whole House	**Total sensible gain**	**8642 Btuh**
Totals for Cooling	Latent infiltration gain (for 51 gr. humidity difference)	552 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**1352 Btuh**
	TOTAL GAIN	**9994 Btuh**

EQUIPMENT

1. PTAC and Room Unit	#	24000 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)

Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Buddy Register
, FL Building Type: User

1/7/2022

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	Vinyl	0.26	E	30.0	10.4	312 Btuh
2	2, NFRC 0.20	Vinyl	0.26	S	45.0	10.4	468 Btuh
3	2, NFRC 0.20	Vinyl	0.26	W	15.0	10.4	156 Btuh
4	2, NFRC 0.20	Vinyl	0.26	W	9.0	10.4	94 Btuh
	Window Total				99.0(sqft)		1030 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	340	3.55	1207 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	190	3.55	675 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	295	3.55	1047 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	196	3.55	696 Btuh
	Wall Total				1021(sqft)		3625 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
	Door Total				40(sqft)		640Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Cathedral/L/Shing		(0.022)	44.0/0.0	792	0.9	706 Btuh
	Ceiling Total				792(sqft)		706Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	116.0 ft(perim.)	47.2	5475 Btuh
	Floor Total				792 sqft		5475 Btuh
					Envelope Subtotal:		11475 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.16	7920	1.00	21.3	935 Btuh
Duct load	Extremely sealed, R8.0, Supply(Con), Return(Con)					(DLM of 0.000)	0 Btuh
All Zones				**Sensible Subtotal All Zones**			**12410 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Buddy Register
Building Type: User

, FL

1/7/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	12410 Btuh 0 Btuh 12410 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24000 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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