Residential System Sizing Calculation

Summary

Project Title:
Lot 19 High Point

, FL

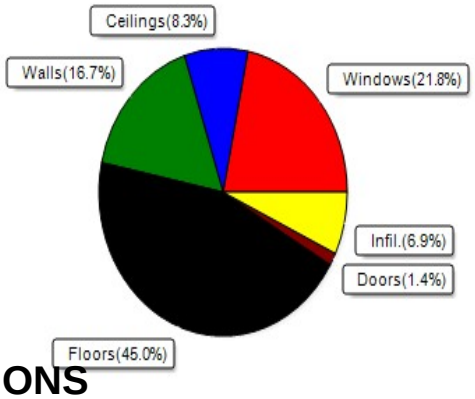
4/1/2021

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	**46325**	**Btuh**	**Total cooling load calculation**	**29920**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	77.7	36000	Sensible (SHR = 0.85)	114.0	30600
Heat Pump + Auxiliary(0.0kW)	77.7	36000	Latent	175.4	5400
			Total (Electric Heat Pump)	120.3	36000

WINTER CALCULATIONS

Winter Heating Load (for 3003 sqft)

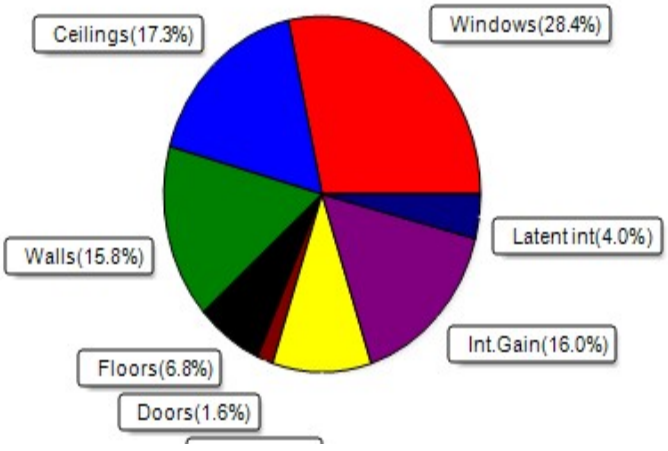
Load component			Load	
Window total	422	sqft	10116	Btuh
Wall total	2231	sqft	7726	Btuh
Door total	78	sqft	653	Btuh
Ceiling total	3003	sqft	3825	Btuh
Floor total	See detail report		20825	Btuh
Infiltration	73	cfm	3178	Btuh
Duct loss			0	Btuh
Subtotal			**46325**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**46325**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 3003 sqft)

Load component			Load	
Window total	422	sqft	8501	Btuh
Wall total	2231	sqft	4738	Btuh
Door total	78	sqft	490	Btuh
Ceiling total	3003	sqft	5164	Btuh
Floor total			2036	Btuh
Infiltration	54	cfm	1132	Btuh
Internal gain			4780	Btuh
Duct gain			0	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**26841**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			1879	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**3079**	**Btuh**
TOTAL HEAT GAIN			**29920**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: _____
DATE: _____

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Lot 19 High Point

, FL

4/1/2021

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	0.27, 0.60		No	No	N	1.5ft	2.3ft	4.5	0.0	4.5	17	17	77 Btuh
2	2 NFRC	0.27, 0.60		No	No	N	1.5ft	2.3ft	12.0	0.0	12.0	17	17	205 Btuh
3	2 NFRC	0.27, 0.60		No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	17	17	512 Btuh
4	2 NFRC	0.27, 0.60		No	No	E	1.5ft	2.3ft	36.0	0.0	36.0	17	37	1347 Btuh
5	2 NFRC	0.27, 0.60		No	No	N	11.5f	2.3ft	16.0	0.0	16.0	17	17	273 Btuh
6	2 NFRC	0.27, 0.60		No	No	N	15.5f	2.3ft	160.0	0.0	160.0	17	17	2733 Btuh
7	2 NFRC	0.27, 0.60		No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	17	17	512 Btuh
8	2 NFRC	0.27, 0.60		No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	17	19	512 Btuh
9	2 NFRC	0.27, 0.60		No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	17	19	512 Btuh
10	2 NFRC	0.27, 0.60		No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	17	19	512 Btuh
11	2 NFRC	0.27, 0.60		No	No	W	1.5ft	2.3ft	8.0	0.0	8.0	17	37	299 Btuh
12	2 NFRC	0.27, 0.60		No	No	W	1.5ft	2.3ft	20.0	0.0	20.0	17	37	749 Btuh
13	2 NFRC	0.27, 0.60		No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	17	19	256 Btuh
	Window Total								422 (sqft)					8501 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.09	13.0/0.6	175.5	2.2	386 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.6	120.0	2.2	264 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.6	90.7	2.2	199 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.6	20.0	2.2	44 Btuh
5	Frame - Wood - Ext	0.09	13.0/0.6	96.7	2.2	213 Btuh
6	Frame - Wood - Ext	0.09	13.0/0.6	126.0	2.2	277 Btuh
7	Frame - Wood - Ext	0.09	13.0/0.6	45.0	2.2	99 Btuh
8	Frame - Wood - Ext	0.09	13.0/0.6	268.5	2.2	590 Btuh
9	Frame - Wood - Ext	0.09	13.0/0.6	45.0	2.2	99 Btuh
10	Frame - Wood - Ext	0.09	13.0/0.6	126.0	2.2	277 Btuh
11	Frame - Wood - Ext	0.09	13.0/0.6	44.0	2.2	97 Btuh
12	Frame - Wood - Ext	0.09	13.0/0.6	127.7	2.2	281 Btuh
13	Frame - Wood - Ext	0.09	13.0/0.6	64.2	2.2	141 Btuh
14	Frame - Wood - Ext	0.09	13.0/0.6	164.7	2.2	362 Btuh
15	Frame - Wood - Ext	0.09	13.0/0.6	73.0	2.2	160 Btuh
16	Frame - Wood - Ext	0.09	13.0/0.6	18.0	2.2	40 Btuh
17	Frame - Wood - Ext	0.09	13.0/0.6	200.0	2.2	440 Btuh
18	Frame - Wood - Ext	0.09	13.0/0.6	100.3	2.2	221 Btuh
19	Frame - Wood - Adj	0.09	13.0/0.0	325.7	1.7	549 Btuh
	Wall Total			2231 (sqft)		4738 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	40.0	6.3	252 Btuh
2	Insulated - Exterior	20.0	6.3	126 Btuh
3	Insulated - Garage	17.8	6.3	112 Btuh
	Door Total	78 (sqft)		490 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.032	30.0/0.0	2625.0	1.72	4514 Btuh
2	Vented Attic/DarkShingle	0.032	30.0/0.0	378.0	1.72	650 Btuh
	Ceiling Total			3003 (sqft)		5164 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	2625 (ft-perimeter)	0.0	0 Btuh
2	Raised Wood - Adj	0.0	378 (sqft)	5.4	2036 Btuh
	Floor Total		3003.0 (sqft)		2036 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 19 High Point

, FL

4/1/2021

					Envelope Subtotal:		20929	Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=		Load	
	Natural	0.12	26649	1	54.4		1132	Btuh
Internal gain		Occupants	Btuh/occupant		Appliance		Load	
		6	X 230	+	3400		4780	Btuh
					Sensible Envelope Load:		26841	Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi)				(DGM of 0.000)		0	Btuh
					Sensible Load All Zones		**26841**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 19 High Point

, FL

4/1/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**26841 Btuh**
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	**26841 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**26841 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	1879 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**3079 Btuh**
	TOTAL GAIN	**29920 Btuh**

EQUIPMENT

1. Central Unit	#	36000 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:
Lot 19 High Point
, FL Building Type: User

4/1/2021

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=	Load
1	2, NFRC 0.27	Vinyl	0.60	N	4.5	24.0	108 Btuh
2	2, NFRC 0.27	Vinyl	0.60	N	12.0	24.0	288 Btuh
3	2, NFRC 0.27	Vinyl	0.60	N	30.0	24.0	720 Btuh
4	2, NFRC 0.27	Vinyl	0.60	E	36.0	24.0	864 Btuh
5	2, NFRC 0.27	Vinyl	0.60	N	16.0	24.0	384 Btuh
6	2, NFRC 0.27	Vinyl	0.60	N	160.0	24.0	3840 Btuh
7	2, NFRC 0.27	Vinyl	0.60	N	30.0	24.0	720 Btuh
8	2, NFRC 0.27	Vinyl	0.60	S	30.0	24.0	720 Btuh
9	2, NFRC 0.27	Vinyl	0.60	S	30.0	24.0	720 Btuh
10	2, NFRC 0.27	Vinyl	0.60	S	30.0	24.0	720 Btuh
11	2, NFRC 0.27	Vinyl	0.60	W	8.0	24.0	192 Btuh
12	2, NFRC 0.27	Vinyl	0.60	W	20.0	24.0	480 Btuh
13	2, NFRC 0.27	Vinyl	0.60	S	15.0	24.0	360 Btuh
	Window Total				421.5(sqft)		10116 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	176	3.45	605 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	120	3.45	414 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	91	3.45	313 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	20	3.45	69 Btuh
5	Frame - Wood	- Ext	(0.086)	13.0/0.6	97	3.45	333 Btuh
6	Frame - Wood	- Ext	(0.086)	13.0/0.6	126	3.45	435 Btuh
7	Frame - Wood	- Ext	(0.086)	13.0/0.6	45	3.45	155 Btuh
8	Frame - Wood	- Ext	(0.086)	13.0/0.6	269	3.45	926 Btuh
9	Frame - Wood	- Ext	(0.086)	13.0/0.6	45	3.45	155 Btuh
10	Frame - Wood	- Ext	(0.086)	13.0/0.6	126	3.45	435 Btuh
11	Frame - Wood	- Ext	(0.086)	13.0/0.6	44	3.45	152 Btuh
12	Frame - Wood	- Ext	(0.086)	13.0/0.6	128	3.45	440 Btuh
13	Frame - Wood	- Ext	(0.086)	13.0/0.6	64	3.45	221 Btuh
14	Frame - Wood	- Ext	(0.086)	13.0/0.6	165	3.45	568 Btuh
15	Frame - Wood	- Ext	(0.086)	13.0/0.6	73	3.45	252 Btuh
16	Frame - Wood	- Ext	(0.086)	13.0/0.6	18	3.45	62 Btuh
17	Frame - Wood	- Ext	(0.086)	13.0/0.6	200	3.45	690 Btuh
18	Frame - Wood	- Ext	(0.086)	13.0/0.6	100	3.45	346 Btuh
19	Frame - Wood	- Adj	(0.089)	13.0/0.0	326	3.55	1156 Btuh
	Wall Total				2231(sqft)		7726 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.210)	40	8.4	336 Btuh
2	Insulated - Exterior,	n	(0.210)	20	8.4	168 Btuh
3	Insulated - Garage,	n	(0.210)	18	8.4	149 Btuh
	Door Total			78(sqft)		653Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Lot 19 High Point
, FL Building Type: User

4/1/2021

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/D/Shing	(0.032)	30.0/0.0	2625	1.3	3344 Btuh
2	Vented Attic/D/Shing	(0.032)	30.0/0.0	378	1.3	482 Btuh
	Ceiling Total			3003(sqft)		3825Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	318.0 ft(perim.)	47.2	15010 Btuh
2	Raised Wood - Adj	(0.385)	0.0	378.0 sqft	15.4	5816 Btuh
	Floor Total			3003 sqft		20825 Btuh
				Envelope Subtotal:		43147 Btuh

Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.16	26649	1.00	72.6	3178 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con)				(DLM of 0.000)	0 Btuh
All Zones			**Sensible Subtotal All Zones**			**46325 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	46325 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	46325 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