

Residential System Sizing Calculation

Summary

Platt Res

Project Title:
220550 Platt

Lake City, FL

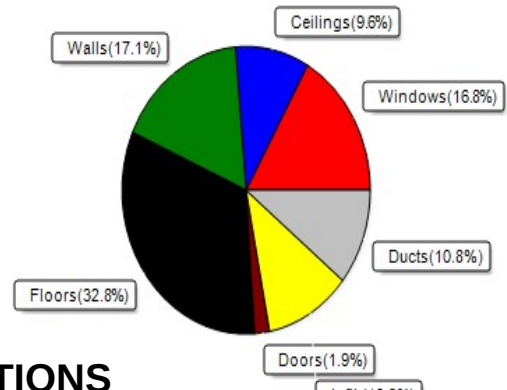
2022-08-08

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	26507 Btuh	Total cooling load calculation	22585 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	109.4 29000	Sensible (SHR = 0.75)	117.4 21750
Heat Pump + Auxiliary(0.0kW)	109.4 29000	Latent	178.7 7250
		Total (Electric Heat Pump)	128.4 29000

WINTER CALCULATIONS

Winter Heating Load (for 1920 sqft)

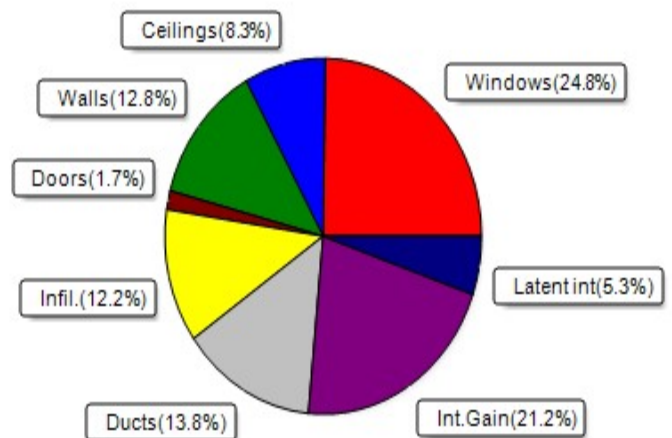
Load component		Load	
Window total	348 sqft	4453	Btuh
Wall total	1276 sqft	4530	Btuh
Door total	32 sqft	516	Btuh
Ceiling total	2048 sqft	2555	Btuh
Floor total	1920 sqft	8685	Btuh
Infiltration	66 cfm	2901	Btuh
Duct loss		2868	Btuh
Subtotal		26507	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		26507	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1920 sqft)

Load component		Load	
Window total	348 sqft	5599	Btuh
Wall total	1276 sqft	2888	Btuh
Door total	32 sqft	387	Btuh
Ceiling total	2048 sqft	1875	Btuh
Floor total		0	Btuh
Infiltration	50 cfm	1034	Btuh
Internal gain		4780	Btuh
Duct gain		1966	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		18528	Btuh
Latent gain(ducts)		1142	Btuh
Latent gain(infiltration)		1715	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		4057	Btuh
TOTAL HEAT GAIN		22585	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: **Evan Beamsley**
DATE: **2022-08-08**

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Platt Res

Project Title:
220550 Platt
Building Type: User

Lake City, FL

2022-08-08

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	0.32	N	8.9		12.8	114 Btuh
2	2, NFRC 0.22	Vinyl	0.32	N	96.0		12.8	1229 Btuh
3	2, NFRC 0.22	Vinyl	0.32	N	10.0		12.8	128 Btuh
4	2, NFRC 0.22	Vinyl	0.32	E	60.0		12.8	768 Btuh
5	2, NFRC 0.22	Vinyl	0.32	E	4.0		12.8	51 Btuh
6	2, NFRC 0.22	Vinyl	0.32	S	60.0		12.8	768 Btuh
7	2, NFRC 0.22	Vinyl	0.32	S	40.0		12.8	512 Btuh
8	2, NFRC 0.22	Vinyl	0.32	S	20.0		12.8	256 Btuh
9	2, NFRC 0.22	Vinyl	0.32	W	45.0		12.8	576 Btuh
10	2, NFRC 0.22	Vinyl	0.32	W	4.0		12.8	51 Btuh
Window Total					347.9(sqft)			4453 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	144		3.55	512 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	142		3.55	504 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	224		3.55	795 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	407		3.55	1444 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	239		3.55	849 Btuh
Wall Total					1276(sqft)			4530 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		9		16.0	142 Btuh
2	Insulated - Exterior, n		(0.400)		10		16.0	160 Btuh
3	Insulated - Exterior, n		(0.400)		13		16.0	213 Btuh
Door Total					32(sqft)			516Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Unvent Attic/D/Shing		(0.241)	0.0/22.0	1920		1.2	2314 Btuh
2	Knee Wall/D/Shing		(0.047)	0.0/22.0	128		1.9	242 Btuh
Ceiling Total					2048(sqft)			2555Btuh
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					1920 sqft			8685 Btuh
Envelope Subtotal:								20738 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.23	17280	1.00	66.3		2901 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.121)							2868 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Platt Res
Lake City, FL

Project Title:
220550 Platt
Building Type: User

2022-08-08

All Zones	Sensible Subtotal All Zones	26507 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	26507 Btuh 0 Btuh 26507 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	29000 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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Platt Res

Project Title:
220550 Platt

Lake City, FL

2022-08-08

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, 0.32	No	No	N		11.5f	1.3ft	8.9	8.9	0.0	11	12	95	Btuh	
2	2 NFRC	0.22, 0.32	No	No	N		30.0f	3.0ft	96.0	96.0	0.0	11	12	1028	Btuh	
3	2 NFRC	0.22, 0.32	No	No	N		11.5f	1.3ft	10.0	10.0	0.0	11	12	107	Btuh	
4	2 NFRC	0.22, 0.32	No	No	E		1.5ft	9.0ft	60.0	0.0	60.0	11	27	1637	Btuh	
5	2 NFRC	0.22, 0.32	No	No	E		1.5ft	9.0ft	4.0	0.0	4.0	11	27	109	Btuh	
6	2 NFRC	0.22, 0.32	No	No	S		11.5f	1.3ft	60.0	0.0	60.0	11	11	642	Btuh	
7	2 NFRC	0.22, 0.32	No	No	S		11.5f	5.0ft	40.0	0.0	40.0	11	11	428	Btuh	
8	2 NFRC	0.22, 0.32	No	No	S		11.5f	10.0f	20.0	0.0	20.0	11	11	214	Btuh	
9	2 NFRC	0.22, 0.32	No	No	W		1.5ft	9.0ft	45.0	0.0	45.0	11	27	1228	Btuh	
10	2 NFRC	0.22, 0.32	No	No	W		1.5ft	3.0ft	4.0	0.0	4.0	11	27	109	Btuh	
	Window Total								348 (sqft)					5599 Btuh		
Walls	Type					U-Value	R-Value		Area(sqft)		HTM		Load			
							Cav/Sheath									
1	Frame - Wood - Ext						0.09	13.0/0.0		144.2		2.3		326	Btuh	
2	Frame - Wood - Ext						0.09	13.0/0.0		120.0		2.3		272	Btuh	
3	Frame - Wood - Ext						0.09	13.0/0.0		142.0		2.3		321	Btuh	
4	Frame - Wood - Ext						0.09	13.0/0.0		224.0		2.3		507	Btuh	
5	Frame - Wood - Ext						0.09	13.0/0.0		406.7		2.3		920	Btuh	
6	Frame - Wood - Ext						0.09	13.0/0.0		239.0		2.3		541	Btuh	
	Wall Total								1276 (sqft)					2888 Btuh		
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior								8.9		12.0		107		Btuh	
2	Insulated - Exterior								10.0		12.0		120		Btuh	
3	Insulated - Exterior								13.3		12.0		160		Btuh	
	Door Total								32 (sqft)					387 Btuh		
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)		HTM		Load			
1	Unvented Attic/DarkShingle						0.241	0.0/22.0		1920.0		0.96		1851	Btuh	
2	Knee Wall/DarkShingle						0.047	0.0/22.0		128.0		0.19		24	Btuh	
	Ceiling Total								2048 (sqft)					1875 Btuh		
Floors	Type						R-Value		Size		HTM		Load			
1	Slab On Grade						0.0		1920 (ft-perimeter)		0.0		0		Btuh	
	Floor Total								1920.0 (sqft)					0 Btuh		
	Envelope Subtotal:													10748 Btuh		
Infiltration	Type					Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load		
	Natural						0.17		17280		1		49.7		1034	Btuh
Internal gain							Occupants		Btuh/occupant		Appliance		Load			
							6		X	230	+	3400	4780		Btuh	
	Sensible Envelope Load:													16562 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.119)			1966		Btuh
	Sensible Load All Zones													18528 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Platt Res

Project Title:
220550 Platt

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2022-08-08

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16562 Btuh
	Sensible Duct Load	1966 Btuh
	Total Sensible Zone Loads	18528 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18528 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1715 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1142 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4057 Btuh
	TOTAL GAIN	22585 Btuh

EQUIPMENT

1. Central Unit	#	29000 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