

Residential System Sizing Calculation

Summary

Project Title:
IC Construction - Star Lake Spec

, FL

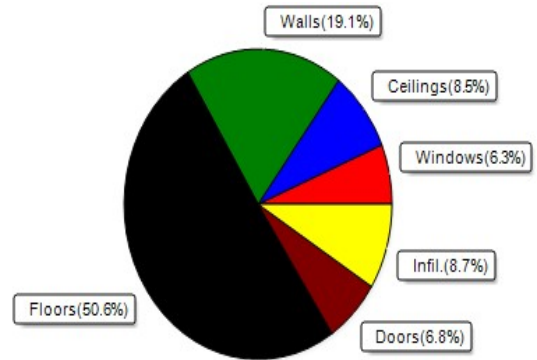
7/18/2024

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	39010	Btuh	Total cooling load calculation	27215	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	123.0	48000	Sensible (SHR = 0.75)	155.2	36000
Heat Pump + Auxiliary(0.0kW)	123.0	48000	Latent	299.1	12000
			Total (Electric Heat Pump)	176.4	48000

WINTER CALCULATIONS

Winter Heating Load (for 3026 sqft)

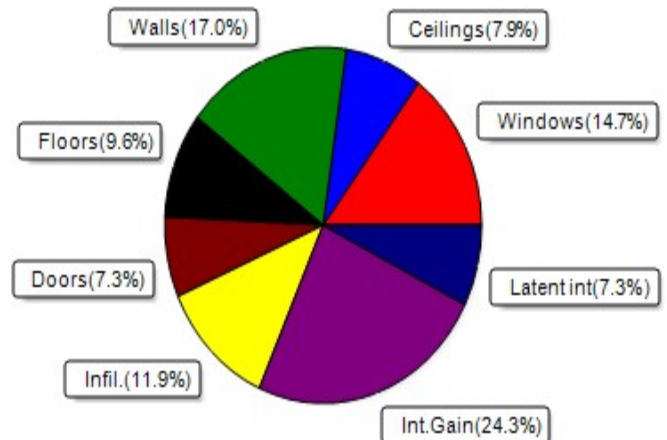
Load component	Load	
Window total	235 sqft	2444 Btuh
Wall total	2102 sqft	7462 Btuh
Door total	144 sqft	2650 Btuh
Ceiling total	3026 sqft	3316 Btuh
Floor total	See detail report	19734 Btuh
Infiltration	78 cfm	3404 Btuh
Duct loss		0 Btuh
Subtotal		39010 Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS		39010 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3026 sqft)

Load component	Load	
Window total	235 sqft	4011 Btuh
Wall total	2102 sqft	4624 Btuh
Door total	144 sqft	1987 Btuh
Ceiling total	3026 sqft	2156 Btuh
Floor total		2612 Btuh
Infiltration	58 cfm	1213 Btuh
Internal gain		6600 Btuh
Duct gain		0 Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		23202 Btuh
Latent gain(ducts)		0 Btuh
Latent gain(infiltration)		2012 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		2000 Btuh
Total latent gain		4012 Btuh
TOTAL HEAT GAIN		27215 Btuh



8th Edition



EnergyGauge® / USRCZB v8.1.04

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

7/18/24

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 IC Construction - Star Lake Spec

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Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	SnglAsmb no airsp/DarkShingle	0.027	0.0/40.0	2541.0	0.71	1810 Btuh
2	SnglAsmb no airsp/DarkShingle	0.027	0.0/40.0	485.0	0.71	345 Btuh
	Ceiling Total			3026 (sqft)		2156 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	2541 (ft-perimeter)	0.0	0 Btuh
2	Raised Wood - Adj		0.0	485 (sqft)	5.4	2612 Btuh
	Floor Total			3026.0 (sqft)		2612 Btuh
	Envelope Subtotal:					15390 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.13	26749	1	58.2	1213 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance		Load
		10	X 230	+ 4300		6600 Btuh
	Sensible Envelope Load:					23202 Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi)				(DGM of 0.000)	0 Btuh
	Sensible Load All Zones					23202 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 IC Construction - Star Lake Spec

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WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	23202 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	23202 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	23202 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2012 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	4012 Btuh
	TOTAL GAIN	27215 Btuh

EQUIPMENT

1. Central Unit	#	48000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:

IC Construction - Star Lake Spec

Building Type: User

, FL

7/18/2024

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 0.33	Vinyl	0.26	N	30.0		10.4	312 Btuh
2	2, NFRC 0.33	Vinyl	0.26	N	52.0		10.4	541 Btuh
3	2, NFRC 0.33	Vinyl	0.26	N	52.0		10.4	541 Btuh
4	2, NFRC 0.33	Vinyl	0.26	E	20.0		10.4	208 Btuh
5	2, NFRC 0.33	Vinyl	0.26	E	8.0		10.4	83 Btuh
6	2, NFRC 0.33	Vinyl	0.26	E	6.0		10.4	62 Btuh
7	2, NFRC 0.33	Vinyl	0.26	E	9.0		10.4	94 Btuh
8	2, NFRC 0.33	Vinyl	0.26	S	12.0		10.4	125 Btuh
9	2, NFRC 0.33	Vinyl	0.26	S	25.0		10.4	260 Btuh
10	2, NFRC 0.33	Vinyl	0.26	S	15.0		10.4	156 Btuh
11	2, NFRC 0.33	Vinyl	0.26	W	6.0		10.4	62 Btuh
Window Total					235.0(sqft)			2444 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	122		3.55	431 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.55	322 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	50		3.55	178 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	96 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.55	327 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	115		3.55	408 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	130		3.55	462 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	119		3.55	421 Btuh
13	Frame - Wood	- Adj	(0.089)	13.0/0.0	231		3.55	818 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	138		3.55	491 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	54		3.55	192 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	83		3.55	295 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	66		3.55	234 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	458 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
21	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	111		3.55	394 Btuh
24	Frame - Wood	- Ext	(0.089)	13.0/0.0	101		3.55	360 Btuh
Wall Total					2102(sqft)			7462 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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Building Type: User

, FL

7/18/2024

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n (0.460)		96	18.4	1766 Btuh
2	Insulated - Garage,	n (0.460)		20	18.4	368 Btuh
3	Insulated - Exterior,	n (0.460)		28	18.4	515 Btuh
	Door Total			144(sqft)		2650Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Single as/D/Shing	(0.027)	0.0/40.0	2541	1.1	2785 Btuh
2	Single as/D/Shing	(0.027)	0.0/40.0	485	1.1	532 Btuh
	Ceiling Total			3026(sqft)		3316Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	260.0 ft(perim.)	47.2	12272 Btuh
2	Raised Wood - Adj	(0.385)	0.0	485.0 sqft	15.4	7462 Btuh
	Floor Total			3026 sqft		19734 Btuh
	Envelope Subtotal:					35606 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.17	26749	1.00	77.6	3404 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)					0 Btuh
All Zones	Sensible Subtotal All Zones					39010 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	39010 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	39010 Btuh

EQUIPMENT

1. Electric Heat Pump	#	48000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

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Building Type: User

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7/18/2024

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