

Residential System Sizing Calculation

Summary

Jason & Christie Gerke

Project Title:
240824 Gerke Res

, FL

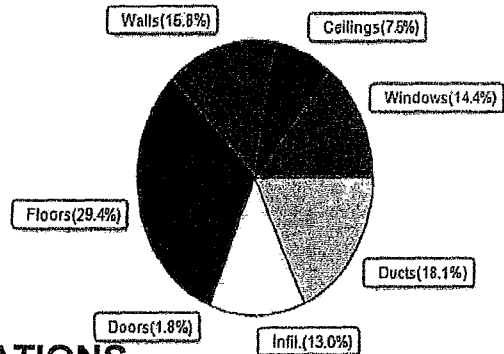
2024-11-16

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	35905 Btuh	Total cooling load calculation	32359 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	108.6 39000	Sensible (SHR = 0.75)	108.1 29250
Heat Pump + Auxiliary(0.0kW)	108.6 39000	Latent	183.8 9750
		Total (Electric Heat Pump)	120.5 39000

WINTER CALCULATIONS

Winter Heating Load (for 2655 sqft)

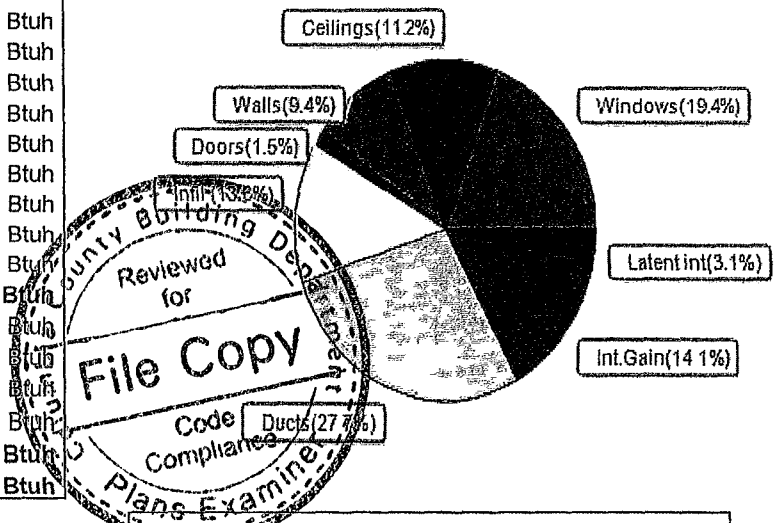
Load component		Load	
Window total	369 sqft	5166	Btuh
Wall total	1831 sqft	5660	Btuh
Door total	40 sqft	640	Btuh
Ceiling total	2655 sqft	2695	Btuh
Floor total	2655 sqft	10573	Btuh
Infiltration	106 cfm	4657	Btuh
Duct loss		6514	Btuh
Subtotal		35905	Btuh
Ventilation	Ex:0 cfm; Sup 0 cfm	0	Btuh
TOTAL HEAT LOSS		35905	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2655 sqft)

Load component		Load	
Window total	369 sqft	6292	Btuh
Wall total	1831 sqft	3028	Btuh
Door total	40 sqft	480	Btuh
Ceiling total	2655 sqft	3639	Btuh
Floor total		0	Btuh
Infiltration	80 cfm	1659	Btuh
Internal gain		4550	Btuh
Duct gain		7407	Btuh
Sens. Ventilation	Ex:0 cfm, Sup 0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		27054	Btuh
Latent gain(ducts)		1551	Btuh
Latent gain(infiltration)		2753	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1000	Btuh
Total latent gain		5305	Btuh
TOTAL HEAT GAIN		32359	Btuh



8th Edition

EnergyGauge® / USRCZB v8 1 00

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE 2024-11-16

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jason & Christie Gerke

Project Title:
240824 Gerke Res
Building Type: User

, FL

2024-11-16

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	Metal	0.35	N	36.0		14.0	504 Btuh
2	2, NFRC 0.25	Metal	0.35	N	32.0		14.0	448 Btuh
3	2, NFRC 0.25	Metal	0.35	N	24.0		14.0	336 Btuh
4	2, NFRC 0.25	Metal	0.35	N	36.0		14.0	504 Btuh
5	2, NFRC 0.25	Metal	0.35	E	54.0		14.0	756 Btuh
6	2, NFRC 0.25	Metal	0.35	E	6.0		14.0	84 Btuh
7	2, NFRC 0.25	Metal	0.35	S	90.0		14.0	1260 Btuh
8	2, NFRC 0.25	Metal	0.35	S	24.0		14.0	336 Btuh
9	2, NFRC 0.25	Metal	0.35	S	24.0		14.0	336 Btuh
10	2, NFRC 0.25	Metal	0.35	W	18.0		14.0	252 Btuh
11	2, NFRC 0.25	Metal	0.35	W	25.0		14.0	350 Btuh
Window Total					369.0(sqft)			5166 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	337		3.09	1042 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	100		3.09	309 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	139		3.09	430 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	440		3.09	1360 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	458		3.09	1416 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	357		3.09	1103 Btuh
Wall Total					1831(sqft)			5660 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		16		16.0	256 Btuh
2	Insulated - Exterior, n		(0.400)		24		16.0	384 Btuh
Door Total					40(sqft)			640Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.025)	38.0/0.0	2655		1.0	2695 Btuh
Ceiling Total					2655(sqft)			2695Btuh
Floors	Type		Ueff	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	224.0 ft(perim.)	47.2		10573 Btuh
Floor Total					2655 sqft			10573 Btuh
Envelope Subtotal:								24734 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.24	26550	1.00	106.2		4657 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.222)		6514 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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, FL

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All Zones	Sensible Subtotal All Zones	35905 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	35905 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	35905 Btuh

EQUIPMENT

1 Electric Heat Pump	#	39000 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

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jason & Christie Gerke

Project Title:
240824 Gerke Res

Climate.FL_GAINESVILLE_REGIONAL_A

, FL

2024-11-16

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	19647 Btuh
	Sensible Duct Load	7407 Btuh
	Total Sensible Zone Loads	27054 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	27054 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2753 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1551 Btuh
	Latent occupant gain (5.0 people @ 200 Btuh per person)	1000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5305 Btuh
	TOTAL GAIN	32359 Btuh

EQUIPMENT

1. Central Unit	#	39000 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(N), 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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Manual J Summer Calculations

Residential Load - Component Details (continued)

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Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0 377)	7407 Btuh
	Sensible Load All Zones	27054 Btuh