

Residential System Sizing Calculation

Summary

James & Lori David

Project Title:
Ivey Model

, FL

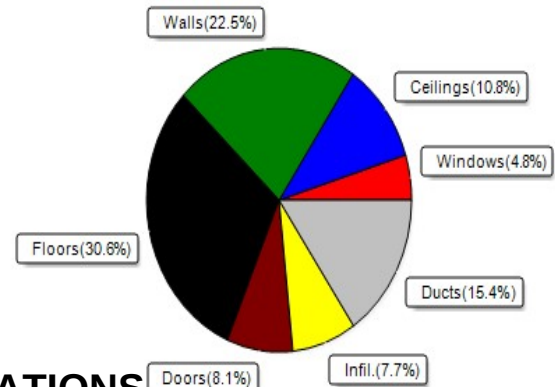
8/26/2025

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	16327 Btuh	Total cooling load calculation	17046 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	220.5 36000	Sensible (SHR = 0.85)	207.6 30600
Heat Pump + Auxiliary(0.0kW)	220.5 36000	Latent	233.8 5400
		Total (Electric Heat Pump)	211.2 36000

WINTER CALCULATIONS

Winter Heating Load (for 1380 sqft)

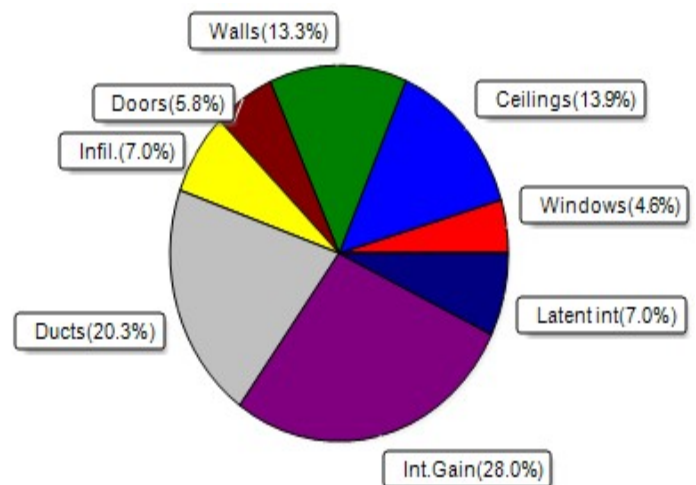
Load component	Load
Window total 75 sqft	780 Btuh
Wall total 1061 sqft	3673 Btuh
Door total 80 sqft	1328 Btuh
Ceiling total 1380 sqft	1758 Btuh
Floor total 1380 sqft	5003 Btuh
Infiltration 29 cfm	1263 Btuh
Duct loss	2522 Btuh
Subtotal	16327 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	16327 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1380 sqft)

Load component	Load
Window total 75 sqft	776 Btuh
Wall total 1061 sqft	2261 Btuh
Door total 80 sqft	996 Btuh
Ceiling total 1380 sqft	2373 Btuh
Floor total	0 Btuh
Infiltration 22 cfm	450 Btuh
Internal gain	4780 Btuh
Duct gain	3100 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	14736 Btuh
Latent gain(ducts)	363 Btuh
Latent gain(infiltration)	747 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2309 Btuh
TOTAL HEAT GAIN	17046 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 8-25-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

James & Lori David

Project Title:

Ivey Model

, FL

8/26/2025

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.20, 0.26	No	No	N	1.5ft	2.3ft	15.0	0.0	15.0	9	9	137	Btuh		
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	9.0	0.0	9.0	9	9	82	Btuh		
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	6.0	0.0	6.0	9	24	145	Btuh		
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	45.0	45.0	0.0	9	11	412	Btuh		
	Window Total							75 (sqft)					776 Btuh			
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
	1	Frame - Wood - Ext					0.09	13.0/0.6	304.0		2.2		668 Btuh			
	2	Frame - Wood - Ext					0.09	13.0/0.6	234.0		2.2		514 Btuh			
	3	Frame - Wood - Ext					0.09	13.0/0.6	303.0		2.2		666 Btuh			
	4	Frame - Wood - Ext					0.09	13.0/0.6	80.0		2.2		176 Btuh			
	5	Frame - Wood - Adj					0.09	13.0/0.0	140.0		1.7		236 Btuh			
	Wall Total							1061 (sqft)				2261 Btuh				
Doors	Type						Area (sqft)		HTM		Load					
	1	Insulated - Exterior					40.0		12.0		480 Btuh					
	2	Insulated - Exterior					20.0		12.0		240 Btuh					
	3	Insulated - Garage					20.0		13.8		276 Btuh					
	Door Total							80 (sqft)				996 Btuh				
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
	1	Vented Attic/DarkShingle					0.032	30.0/0.0	1380.0		1.72		2373 Btuh			
	Ceiling Total							1380 (sqft)				2373 Btuh				
Floors	Type						R-Value		Size		HTM		Load			
	1	Slab On Grade					0.0		1380 (ft-perimeter)		0.0		0 Btuh			
	Floor Total							1380.0 (sqft)				0 Btuh				
	Envelope Subtotal:												6407 Btuh			
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.12		11040		1		21.6		450 Btuh	
Internal gain						Occupants		Btuh/occupant		Appliance				Load		
						6		X 230		+		3400		4780 Btuh		
	Sensible Envelope Load:												11637 Btuh			
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic)										(DGM of 0.266)		3100 Btuh			
	Sensible Load All Zones												14736 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

James & Lori David

Project Title:
Ivey Model

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

8/26/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	11637 Btuh
	Sensible Duct Load	3100 Btuh
	Total Sensible Zone Loads	14736 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14736 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	747 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	363 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2309 Btuh
	TOTAL GAIN	17046 Btuh

EQUIPMENT

1. Central Unit	#	36000 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

James & Lori David

Project Title:
Ivey Model
Building Type: User

8/26/2025

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 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	9.0		10.4	94 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	6.0		10.4	62 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	45.0		10.4	468 Btuh
	Window Total				75.0(sqft)			780 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.086)	13.0/0.6	304		3.45	1048 Btuh
2	Frame - Wood	- Ext	(0.086)	13.0/0.6	234		3.45	807 Btuh
3	Frame - Wood	- Ext	(0.086)	13.0/0.6	303		3.45	1045 Btuh
4	Frame - Wood	- Ext	(0.086)	13.0/0.6	80		3.45	276 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	140		3.55	497 Btuh
	Wall Total				1061(sqft)			3673 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		40		16.0	640 Btuh
2	Insulated - Exterior,	n	(0.400)		20		16.0	320 Btuh
3	Insulated - Garage,	n	(0.460)		20		18.4	368 Btuh
	Door Total				80(sqft)			1328Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	1380		1.3	1758 Btuh
	Ceiling Total				1380(sqft)			1758Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	106.0 ft(perim.)		47.2	5003 Btuh
	Floor Total				1380 sqft			5003 Btuh
	Envelope Subtotal:							12542 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	11040	1.00	28.8		1263 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.183)	2522 Btuh
All Zones	Sensible Subtotal All Zones							16327 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

James & Lori David

Project Title:
Ivey Model
Building Type: User

, FL

8/26/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	16327 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	16327 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36000 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