

Residential System Sizing Calculation

Summary

Project Title:
Humphrey Residence

, FL

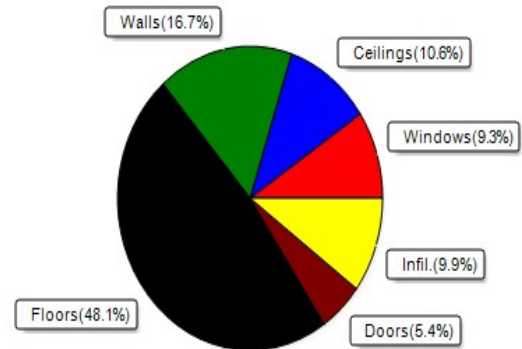
8/6/2025

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	48987	Btuh	Total cooling load calculation	35309	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	122.5	60000	Sensible (SHR = 0.75)	147.8	45000
Heat Pump + Auxiliary(0.0kW)	122.5	60000	Latent	308.6	15000
			Total (Electric Heat Pump)	169.9	60000

WINTER CALCULATIONS

Winter Heating Load (for 3823 sqft)

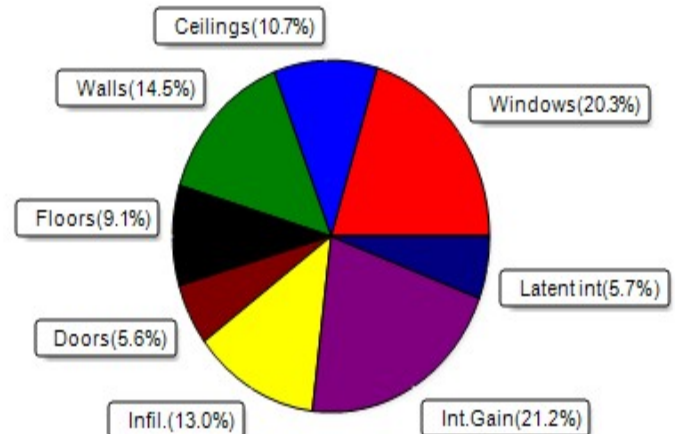
Load component	Load
Window total 439 sqft	4566 Btuh
Wall total 2300 sqft	8167 Btuh
Door total 144 sqft	2650 Btuh
Ceiling total 3823 sqft	5200 Btuh
Floor total See detail report	23566 Btuh
Infiltration 110 cfm	4840 Btuh
Duct loss	0 Btuh
Subtotal	48987 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	48987 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 3823 sqft)

Load component	Load
Window total 439 sqft	7151 Btuh
Wall total 2300 sqft	5106 Btuh
Door total 144 sqft	1987 Btuh
Ceiling total 3823 sqft	3770 Btuh
Floor total	3209 Btuh
Infiltration 83 cfm	1724 Btuh
Internal gain	7500 Btuh
Duct gain	0 Btuh
Sens. Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	30448 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	2861 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	2000 Btuh
Total latent gain	4861 Btuh
TOTAL HEAT GAIN	35309 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 8-6-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Humphrey Residence

, FL

8/6/2025

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	1.3ft	36.0	0.0	36.0	9	9	329	Btuh
2	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	72.0	0.0	72.0	9	24	1744	Btuh
3	2 NFRC	0.20, 0.26	No	No	N		1.5ft	1.3ft	36.0	0.0	36.0	9	9	329	Btuh
4	2 NFRC	0.20, 0.26	No	No	N		1.5ft	1.3ft	16.0	0.0	16.0	9	9	146	Btuh
5	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh
6	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	8.0	0.0	8.0	9	24	194	Btuh
7	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh
8	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	10.0	10.0	0.0	9	11	91	Btuh
9	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	36.0	36.0	0.0	9	11	329	Btuh
10	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	10.0	10.0	0.0	9	11	91	Btuh
11	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	72.0	72.0	0.0	9	11	659	Btuh
12	2 NFRC	0.20, 0.26	No	No	W		1.5ft	1.3ft	8.0	0.0	8.0	9	24	194	Btuh
13	2 NFRC	0.20, 0.26	No	No	W		1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh
14	2 NFRC	0.20, 0.26	No	No	W		1.5ft	1.3ft	54.0	0.0	54.0	9	24	1308	Btuh
15	2 NFRC	0.20, 0.26	No	No	N		1.5ft	1.3ft	15.0	0.0	15.0	9	9	137	Btuh
	Window Total								439 (sqft)					7151 Btuh	
Walls	Type					U-Value	R-Value		Area(sqft)		HTM		Load		
							Cav/Sheath								
1	Frame - Wood - Ext					0.09	13.0/0.0		144.0		2.3		326 Btuh		
2	Frame - Wood - Ext					0.09	13.0/0.0		243.0		2.3		550 Btuh		
3	Frame - Wood - Ext					0.09	13.0/0.0		201.7		2.3		456 Btuh		
4	Frame - Wood - Adj					0.09	13.0/0.0		173.3		1.7		292 Btuh		
5	Frame - Wood - Ext					0.09	13.0/0.0		262.0		2.3		593 Btuh		
6	Frame - Wood - Ext					0.09	13.0/0.0		80.0		2.3		181 Btuh		
7	Frame - Wood - Ext					0.09	13.0/0.0		18.0		2.3		41 Btuh		
8	Frame - Wood - Ext					0.09	13.0/0.0		96.0		2.3		217 Btuh		
9	Frame - Wood - Ext					0.09	13.0/0.0		45.0		2.3		102 Btuh		
10	Frame - Wood - Ext					0.09	13.0/0.0		71.0		2.3		161 Btuh		
11	Frame - Wood - Ext					0.09	13.0/0.0		26.7		2.3		60 Btuh		
12	Frame - Wood - Ext					0.09	13.0/0.0		215.0		2.3		487 Btuh		
13	Frame - Wood - Ext					0.09	13.0/0.0		24.0		2.3		54 Btuh		
14	Frame - Wood - Ext					0.09	13.0/0.0		45.0		2.3		102 Btuh		
15	Frame - Wood - Ext					0.09	13.0/0.0		328.0		2.3		742 Btuh		
16	Frame - Wood - Ext					0.09	13.0/0.0		24.0		2.3		54 Btuh		
17	Frame - Wood - Ext					0.09	13.0/0.0		216.0		2.3		489 Btuh		
18	Frame - Wood - Ext					0.09	13.0/0.0		87.7		2.3		198 Btuh		
	Wall Total								2300 (sqft)					5106 Btuh	
Doors	Type								Area (sqft)		HTM		Load		
1	Insulated - Exterior								24.0		13.8		331 Btuh		
2	Insulated - Exterior								48.0		13.8		662 Btuh		
3	Insulated - Garage								24.0		13.8		331 Btuh		
4	Insulated - Exterior								48.0		13.8		662 Btuh		
	Door Total								144 (sqft)					1987 Btuh	
Ceilings	Type/Color/Surface					U-Value	R-Value		Area(sqft)		HTM		Load		
1	SnglAsmb no airsp/DarkShingle					0.034	0.0/30.0		3227.0		0.99		3182 Btuh		
2	SnglAsmb no airsp/DarkShingle					0.034	0.0/30.0		596.0		0.99		588 Btuh		
	Ceiling Total								3823 (sqft)					3770 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Humphrey Residence

, FL

8/6/2025

Floors	Type	R-Value	Size	HTM	Load	
1	Slab On Grade	0.0	3227 (ft-perimeter)	0.0	0 Btuh	
2	Raised Wood - Adj	0.0	596 (sqft)	5.4	3209 Btuh	
	Floor Total		3823.0 (sqft)		3209 Btuh	
	Envelope Subtotal:				21224 Btuh	
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.15	33811	1	82.8	1724 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		10	X 230	+	5200	7500 Btuh
	Sensible Envelope Load:					30448 Btuh
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi)			(DGM of 0.000)		0 Btuh
	Sensible Load All Zones					30448 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Humphrey Residence

, FL

8/6/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	30448 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	30448 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	30448 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2861 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	4861 Btuh
	TOTAL GAIN	35309 Btuh

EQUIPMENT

1. Central Unit	#	60000 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:
Humphrey Residence
Building Type: User

, FL

8/6/2025

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	36.0		10.4	374 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	72.0		10.4	749 Btuh
3	2, NFRC 0.20	Vinyl	0.26	N	36.0		10.4	374 Btuh
4	2, NFRC 0.20	Vinyl	0.26	N	16.0		10.4	166 Btuh
5	2, NFRC 0.20	Vinyl	0.26	E	18.0		10.4	187 Btuh
6	2, NFRC 0.20	Vinyl	0.26	E	8.0		10.4	83 Btuh
7	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4	312 Btuh
8	2, NFRC 0.20	Vinyl	0.26	S	10.0		10.4	104 Btuh
9	2, NFRC 0.20	Vinyl	0.26	S	36.0		10.4	374 Btuh
10	2, NFRC 0.20	Vinyl	0.26	S	10.0		10.4	104 Btuh
11	2, NFRC 0.20	Vinyl	0.26	S	72.0		10.4	749 Btuh
12	2, NFRC 0.20	Vinyl	0.26	W	8.0		10.4	83 Btuh
13	2, NFRC 0.20	Vinyl	0.26	W	18.0		10.4	187 Btuh
14	2, NFRC 0.20	Vinyl	0.26	W	54.0		10.4	562 Btuh
15	2, NFRC 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
Window Total					439.0(sqft)			4566 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	511 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	243		3.55	863 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	202		3.55	716 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	173		3.55	615 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	262		3.55	930 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	80		3.55	284 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	71		3.55	252 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	27		3.55	95 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	215		3.55	763 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.55	85 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	45		3.55	160 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	328		3.55	1165 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	24		3.55	85 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	216		3.55	767 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	88		3.55	311 Btuh
Wall Total					2300(sqft)			8167 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Humphrey Residence
Building Type: User

8/6/2025

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n (0.460)		24	18.4	442 Btuh
2	Insulated - Exterior,	n (0.460)		48	18.4	883 Btuh
3	Insulated - Garage,	n (0.460)		24	18.4	442 Btuh
4	Insulated - Exterior,	n (0.460)		48	18.4	883 Btuh
	Door Total			144(sqft)		2650Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Single as/D/Shing	(0.034)	0.0/30.0	3227	1.4	4389 Btuh
2	Single as/D/Shing	(0.034)	0.0/30.0	596	1.4	811 Btuh
	Ceiling Total			3823(sqft)		5200Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	305.0 ft(perim.)	47.2	14396 Btuh
2	Raised Wood - Adj	(0.385)	0.0	596.0 sqft	15.4	9170 Btuh
	Floor Total			3823 sqft		23566 Btuh
	Envelope Subtotal:					44148 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.20	33811	1.00	110.3	4840 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)					0 Btuh
All Zones	Sensible Subtotal All Zones					48987 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	48987 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	48987 Btuh

EQUIPMENT

1. Electric Heat Pump	#	60000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Humphrey Residence
Building Type: User

, FL

8/6/2025

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