

Residential System Sizing Calculation

Summary

Project Title:
Adams River House

, FL

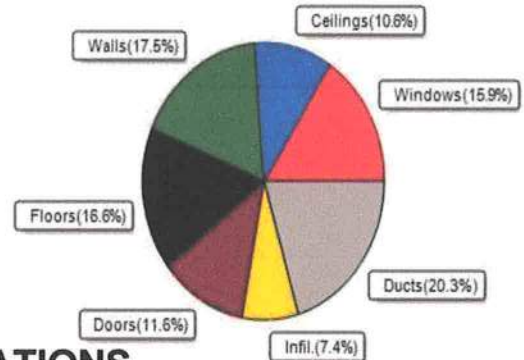
6/13/2023

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	16487 Btuh	Total cooling load calculation	20253 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	182.0 30000	Sensible (SHR = 0.85)	142.6 25500
Heat Pump + Auxiliary(0.0kW)	182.0 30000	Latent	189.4 4500
		Total (Electric Heat Pump)	148.1 30000

WINTER CALCULATIONS

Winter Heating Load (for 1368 sqft)

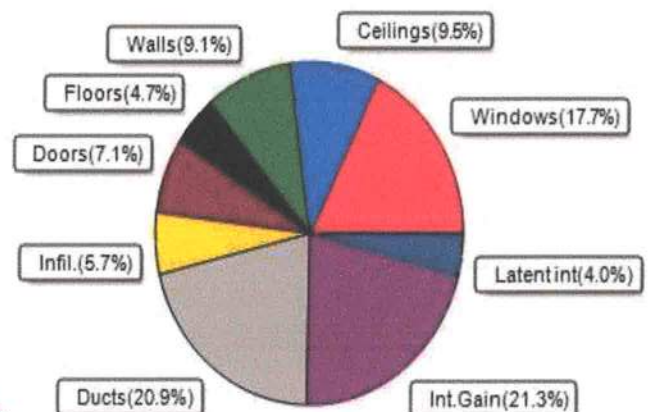
Load component	Load
Window total 252 sqft	2617 Btuh
Wall total 812 sqft	2884 Btuh
Door total 120 sqft	1920 Btuh
Ceiling total 1368 sqft	1743 Btuh
Floor total 1368 sqft	2744 Btuh
Infiltration 28 cfm	1227 Btuh
Duct loss	3353 Btuh
Subtotal	16487 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	16487 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1368 sqft)

Load component	Load
Window total 252 sqft	3579 Btuh
Wall total 812 sqft	1839 Btuh
Door total 120 sqft	1440 Btuh
Ceiling total 1368 sqft	1917 Btuh
Floor total	960 Btuh
Infiltration 21 cfm	437 Btuh
Internal gain	4320 Btuh
Duct gain	3385 Btuh
Sens. Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	17878 Btuh
Latent gain(ducts)	850 Btuh
Latent gain(infiltration)	725 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	800 Btuh
Total latent gain	2375 Btuh
TOTAL HEAT GAIN	20253 Btuh



8th Edition



EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

6-16-23

EnergyGauge® USRCZB v7.5.01

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Adams River House

, FL

6/13/2023

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	S	1.5ft	2.3ft	16.7	16.7	0.0	9	11	152	Btuh
2	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	15.0	15.0	0.0	9	11	137	Btuh
3	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	60.0	55.7	4.3	9	11	556	Btuh
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	40.0	37.1	2.9	9	11	370	Btuh
5	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	9.0	0.0	9.0	9	24	218	Btuh
6	2 NFRC	0.20, 0.26	No	No	W	1.5ft	2.3ft	30.0	0.0	30.0	9	24	727	Btuh
7	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	6.0	0.0	6.0	9	9	55	Btuh
8	2 NFRC	0.20, 0.26	No	No	N	1.5ft	2.3ft	30.0	0.0	30.0	9	9	274	Btuh
9	2 NFRC	0.20, 0.26	No	No	E	1.5ft	2.3ft	45.0	0.0	45.0	9	24	1090	Btuh
Window Total								252 (sqft)					3579 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Frame - Wood - Ext	0.09		13.0/0.0		72.3		2.3		164 Btuh				
2	Frame - Wood - Ext	0.09		13.0/0.0		229.0		2.3		518 Btuh				
3	Frame - Wood - Ext	0.09		13.0/0.0		268.0		2.3		607 Btuh				
4	Frame - Wood - Ext	0.09		13.0/0.0		243.0		2.3		550 Btuh				
Wall Total						812 (sqft)					1839 Btuh			
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Exterior	20.0		12.0		240 Btuh								
2	Insulated - Exterior	60.0		12.0		720 Btuh								
3	Insulated - Exterior	40.0		12.0		480 Btuh								
Door Total						120 (sqft)					1440 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Vented Attic/Med/Shingle	0.032		30.0/0.0		1368.0		1.40		1917 Btuh				
Ceiling Total						1368 (sqft)					1917 Btuh			
Floors	Type	R-Value		Size		HTM		Load						
1	Raised - Open	19.0		1368 (sqft)		0.7		960 Btuh						
Floor Total						1368.0 (sqft)					960 Btuh			
Envelope Subtotal:												9735 Btuh		
Infiltration	Type	Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural													
		0.11		10944		1		21.0		437 Btuh				
Internal gain		Occupants		Btuh/occupant		Appliance		Load						
		4		X 230		+		3400		4320 Btuh				
Sensible Envelope Load:												14492 Btuh		
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.234)										3385 Btuh			
Sensible Load All Zones												17878 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Adams River House

, FL

6/13/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14492 Btuh
	Sensible Duct Load	3385 Btuh
	Total Sensible Zone Loads	17878 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17878 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	725 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	850 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2375 Btuh
	TOTAL GAIN	20253 Btuh

EQUIPMENT

1. Central Unit	#	30000 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:
Adams River House
Building Type: User

, FL

6/13/2023

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	S	16.7		10.4	173 Btuh
2	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
3	2, NFRC 0.20	Vinyl	0.26	S	60.0		10.4	624 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	40.0		10.4	416 Btuh
5	2, NFRC 0.20	Vinyl	0.26	W	9.0		10.4	94 Btuh
6	2, NFRC 0.20	Vinyl	0.26	W	30.0		10.4	312 Btuh
7	2, NFRC 0.20	Vinyl	0.26	N	6.0		10.4	62 Btuh
8	2, NFRC 0.20	Vinyl	0.26	N	30.0		10.4	312 Btuh
9	2, NFRC 0.20	Vinyl	0.26	E	45.0		10.4	468 Btuh
Window Total					251.7(sqft)			2617 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	257 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	229		3.55	813 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	268		3.55	951 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	243		3.55	863 Btuh
Wall Total					812(sqft)			2884 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		20		16.0	320 Btuh
2	Insulated - Exterior,	n	(0.400)		60		16.0	960 Btuh
3	Insulated - Exterior,	n	(0.400)		40		16.0	640 Btuh
Door Total					120(sqft)			1920Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/M/Shing		(0.032)	30.0/0.0	1368		1.3	1743 Btuh
Ceiling Total					1368(sqft)			1743Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Raised - Open		(0.050)	19.0	1368.0 sqft		2.0	2744 Btuh
Floor Total					1368 sqft			2744 Btuh
Envelope Subtotal:								11908 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.15	10944	1.00	28.0		1227 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)						(DLM of 0.255)	3353 Btuh
All Zones	Sensible Subtotal All Zones							16487 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Adams River House
Building Type: User

, FL

6/13/2023

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	16487 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	16487 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30000 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