

Residential System Sizing Calculation

Summary

Project Title:
Deen Residence

, FL

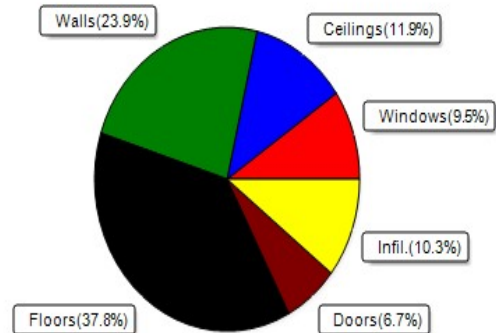
6/19/2024

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	27507 Btuh	Total cooling load calculation	19263 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	152.7 42000	Sensible (SHR = 0.75)	192.2 31500
Heat Pump + Auxiliary(0.0kW)	152.7 42000	Latent	365.0 10500
		Total (Electric Heat Pump)	218.0 42000

WINTER CALCULATIONS

Winter Heating Load (for 2400 sqft)

Load component	Load
Window total 252 sqft	2621 Btuh
Wall total 1848 sqft	6561 Btuh
Door total 100 sqft	1840 Btuh
Ceiling total 2400 sqft	3264 Btuh
Floor total 2400 sqft	10384 Btuh
Infiltration 65 cfm	2837 Btuh
Duct loss	0 Btuh
Subtotal	27507 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS	27507 Btuh



SUMMER CALCULATIONS

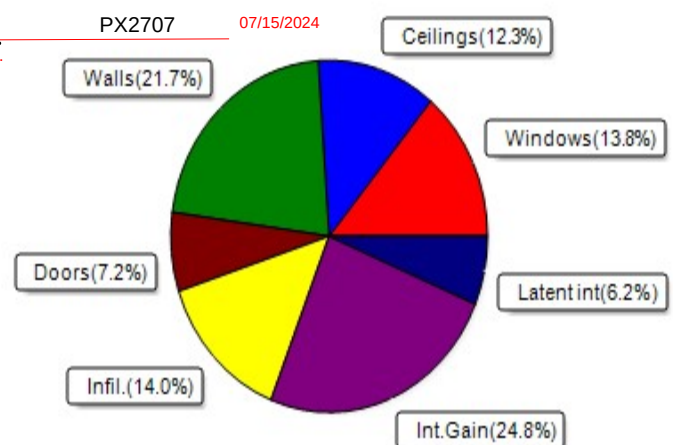
Summer Cooling Load (for 2400 sqft)

Load component	Load
Window total 252 sqft	2667 Btuh
Wall total 1848 sqft	4183 Btuh
Door total 100 sqft	1380 Btuh
Ceiling total 2400 sqft	2367 Btuh
Floor total	0 Btuh
Infiltration 49 cfm	1011 Btuh
Internal gain	4780 Btuh
Duct gain	0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	16387 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	1677 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1200 Btuh
Total latent gain	2877 Btuh
TOTAL HEAT GAIN	19263 Btuh



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8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 6-19-24

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Deen Residence

, FL

6/19/2024

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	126.0	0.0	126.0	9	9	1153	Btuh		
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	8.0	0.0	8.0	9	9	73	Btuh		
3	2 NFRC	0.20, 0.26	No	No	E	1.5ft	1.3ft	24.0	0.0	24.0	9	24	581	Btuh		
4	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	8.0	8.0	0.0	9	11	73	Btuh		
5	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	54.0	54.0	0.0	9	11	494	Btuh		
6	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	32.0	32.0	0.0	9	11	293	Btuh		
	Window Total							252 (sqft)					2667 Btuh			
Walls	Type					U-Value		R-Value		Area(sqft)		HTM		Load		
								Cav/Sheath								
1	Frame - Wood - Ext					0.09		13.0/0.0		626.0		2.3		1417 Btuh		
2	Frame - Wood - Ext					0.09		13.0/0.0		276.0		2.3		625 Btuh		
3	Frame - Wood - Ext					0.09		13.0/0.0		666.0		2.3		1507 Btuh		
4	Frame - Wood - Ext					0.09		13.0/0.0		280.0		2.3		634 Btuh		
	Wall Total									1848 (sqft)				4183 Btuh		
Doors	Type					Area (sqft)					HTM		Load			
1	Insulated - Exterior					40.0					13.8		552 Btuh			
2	Insulated - Exterior					40.0					13.8		552 Btuh			
3	Insulated - Exterior					20.0					13.8		276 Btuh			
	Door Total					100 (sqft)							1380 Btuh			
Ceilings	Type/Color/Surface					U-Value		R-Value		Area(sqft)		HTM		Load		
1	SnglAsmb no airsp/DarkMetal					0.034		30.0/0.0		2400.0		0.99		2367 Btuh		
	Ceiling Total					2400 (sqft)							2367 Btuh			
Floors	Type					R-Value					Size		HTM		Load	
1	Slab On Grade					0.0					2400 (ft-perimeter)		0.0		0 Btuh	
	Floor Total					2400.0 (sqft)							0 Btuh			
	Envelope Subtotal:													10596 Btuh		
Infiltration	Type					Average ACH			Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural					0.12			24000		1		48.5		1011 Btuh	
Internal gain						Occupants			Btuh/occupant		Appliance		Load			
						6			X 230		+		3400		4780 Btuh	
	Sensible Envelope Load:													16387 Btuh		
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)													0 Btuh		
	Sensible Load All Zones													16387 Btuh		



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Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Deen Residence

, FL

6/19/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16387 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	16387 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16387 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1677 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2877 Btuh
	TOTAL GAIN	19263 Btuh

EQUIPMENT

1. Central Unit	#	42000 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)



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System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Deen Residence
Building Type: User

, FL

6/19/2024

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 0.20	Vinyl	0.26	N	126.0		10.4	1310 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	8.0		10.4	83 Btuh
3	2, NFRC 0.20	Vinyl	0.26	E	24.0		10.4	250 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	8.0		10.4	83 Btuh
5	2, NFRC 0.20	Vinyl	0.26	S	54.0		10.4	562 Btuh
6	2, NFRC 0.20	Vinyl	0.26	S	32.0		10.4	333 Btuh
	Window Total				252.0(sqft)			2621 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	626		3.55	2223 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	276		3.55	980 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	666		3.55	2365 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	280		3.55	994 Btuh
	Wall Total				1848(sqft)			6561 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
2	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
3	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
	Door Total				100(sqft)			1840Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/D/Metal		(0.034)	30.0/0.0	2400		1.4	3264 Btuh
	Ceiling Total				2400(sqft)			3264Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	220.0 ft(perim.)		47.2	10384 Btuh
	Floor Total				2400 sqft			10384 Btuh
	Envelope Subtotal:							24670 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	24000	1.00	64.7		2837 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con)						(DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones							27507 Btuh



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Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Deen Residence
Building Type: User

6/19/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	27507 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	27507 Btuh

EQUIPMENT

1. Electric Heat Pump	#	42000 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)



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