

Residential System Sizing Calculation

Summary

Project Title:
Dupree Residence

, FL

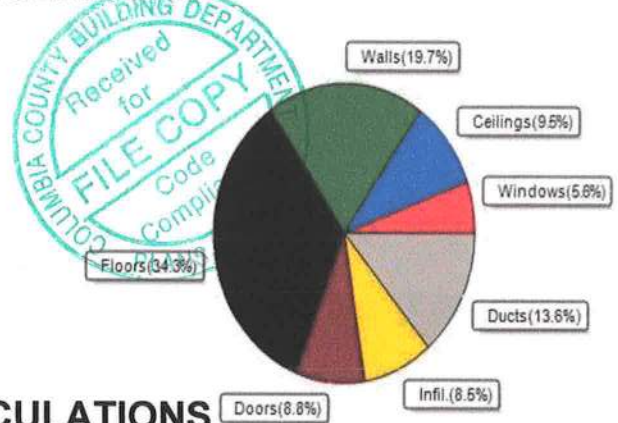
6/21/2024

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	25163	Btuh	Total cooling load calculation	22067	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	143.1	36000	Sensible (SHR = 0.75)	141.3	27000
Heat Pump + Auxiliary(0.0kW)	143.1	36000	Latent	304.9	9000
			Total (Electric Heat Pump)	163.1	36000

WINTER CALCULATIONS

Winter Heating Load (for 1885 sqft)

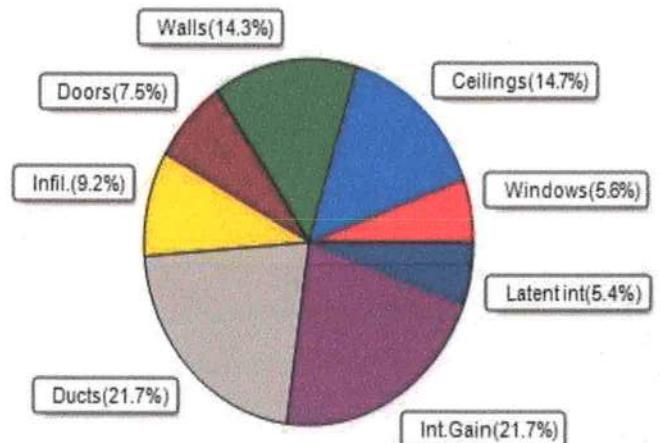
Load component		Load
Window total	135 sqft	1403 Btuh
Wall total	1394 sqft	4948 Btuh
Door total	120 sqft	2208 Btuh
Ceiling total	1885 sqft	2401 Btuh
Floor total	1885 sqft	8638 Btuh
Infiltration	49 cfm	2136 Btuh
Duct loss		3430 Btuh
Subtotal		25163 Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
TOTAL HEAT LOSS		25163 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1885 sqft)

Load component		Load
Window total	135 sqft	1234 Btuh
Wall total	1394 sqft	3154 Btuh
Door total	120 sqft	1656 Btuh
Ceiling total	1885 sqft	3242 Btuh
Floor total		0 Btuh
Infiltration	37 cfm	761 Btuh
Internal gain		4780 Btuh
Duct gain		4288 Btuh
Sens. Ventilation	Ex:0 cfm; Sup:0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		19115 Btuh
Latent gain(ducts)		489 Btuh
Latent gain(infiltration)		1263 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		1200 Btuh
Total latent gain		2952 Btuh
TOTAL HEAT GAIN		22067 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 6-21-24

[Signature]

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Dupree Residence

, FL

6/21/2024

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	18.0	0.0	18.0	9	9	165 Btuh
2	2 NFRC	0.20, 0.26	No	No	N	1.5ft	1.3ft	8.9	0.0	8.9	9	9	81 Btuh
3	2 NFRC	0.20, 0.26	No	No	S	1.5ft	1.3ft	108.0	108.0	0.0	9	11	988 Btuh
Window Total								135 (sqft)					1234 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load
							Cav/Sheath						
	1	Frame - Wood - Ext					0.09	13.0/0.0	415.1		2.3		940 Btuh
	2	Frame - Wood - Ext					0.09	13.0/0.0	302.3		2.3		684 Btuh
	3	Frame - Wood - Ext					0.09	13.0/0.0	374.0		2.3		846 Btuh
	4	Frame - Wood - Ext					0.09	13.0/0.0	302.3		2.3		684 Btuh
	Wall Total								1394 (sqft)				
Doors	Type								Area (sqft)		HTM		Load
	1	Insulated - Exterior							20.0		13.8		276 Btuh
	2	Insulated - Exterior							20.0		13.8		276 Btuh
	3	Insulated - Exterior							20.0		13.8		276 Btuh
	4	Insulated - Exterior							20.0		13.8		276 Btuh
	5	Insulated - Exterior							40.0		13.8		552 Btuh
	Door Total								120 (sqft)				
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load
	1	Vented Attic/DarkShingle					0.032	30.0/0.0	1885.0		1.72		3242 Btuh
	Ceiling Total								1885 (sqft)				
Floors	Type						R-Value		Size		HTM		Load
	1	Slab On Grade					0.0		1885 (ft-perimeter)		0.0		0 Btuh
	Floor Total								1885.0 (sqft)				
	Envelope Subtotal:												9286 Btuh
Infiltration	Type						Average ACH		Volume(cuft)		CFM=		Load
	Natural						0.13		16965		1		761 Btuh
Internal gain						Occupants		Btuh/occupant		Appliance		Load	
						6		X 230		+		4780 Btuh	
	Sensible Envelope Load:												14827 Btuh
Duct load	Extremely sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.289)												4288 Btuh
	Sensible Load All Zones												19115 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Dupree Residence

, FL

6/21/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14827 Btuh
	Sensible Duct Load	4288 Btuh
	Total Sensible Zone Loads	19115 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	19115 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1263 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	489 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	2952 Btuh
	TOTAL GAIN	22067 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

Project Title:
Dupree Residence
Building Type: User

, FL

6/21/2024

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	18.0		10.4	187 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	8.9		10.4	92 Btuh
3	2, NFRC 0.20	Vinyl	0.26	S	108.0		10.4	1123 Btuh
Window Total					134.9(sqft)			1403 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	415		3.55	1474 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	302		3.55	1073 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	374		3.55	1328 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	302		3.55	1073 Btuh
Wall Total					1394(sqft)			4948 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
3	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
4	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
5	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
Door Total					120(sqft)			2208Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/D/Shing		(0.032)	30.0/0.0	1885		1.3	2401 Btuh
Ceiling Total					1885(sqft)			2401Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	183.0 ft(perim.)		47.2	8638 Btuh
Floor Total					1885 sqft			8638 Btuh
Envelope Subtotal:								19597 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	16965	1.00	48.7		2136 Btuh
Duct load	Extremely sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.158)							3430 Btuh
All Zones	Sensible Subtotal All Zones							25163 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Dupree Residence
Building Type: User

, FL

6/21/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	25163 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	25163 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