

Residential System Sizing Calculation

Summary

Jim Dahm Res
235 SW Jack Rabbit Ct
Fort White, FL 32038

Project Title:
221041 Dahm

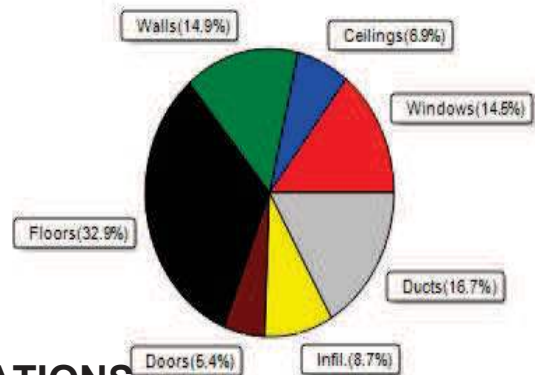
2022-09-01

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	27833 Btuh	Total cooling load calculation	25130 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	107.8 30000	Sensible (SHR = 0.75)	103.4 22500
Heat Pump + Auxiliary(0.0kW)	107.8 30000	Latent	222.9 7500
		Total (Electric Heat Pump)	119.4 30000

WINTER CALCULATIONS

Winter Heating Load (for 1892 sqft)

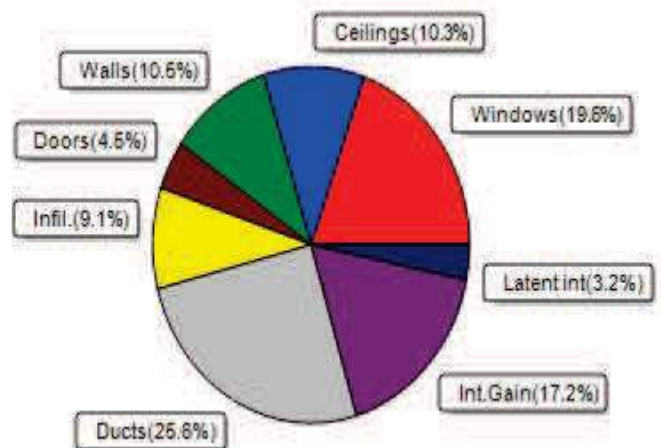
Load component		Load	
Window total	288 sqft	4034	Btuh
Wall total	1167 sqft	4141	Btuh
Door total	93 sqft	1493	Btuh
Ceiling total	1892 sqft	1921	Btuh
Floor total	1892 sqft	9157	Btuh
Infiltration	55 cfm	2424	Btuh
Duct loss		4662	Btuh
Subtotal		27833	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27833	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1892 sqft)

Load component		Load	
Window total	288 sqft	4918	Btuh
Wall total	1167 sqft	2640	Btuh
Door total	93 sqft	1120	Btuh
Ceiling total	1892 sqft	2593	Btuh
Floor total		0	Btuh
Infiltration	42 cfm	864	Btuh
Internal gain		4320	Btuh
Duct gain		5311	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		21766	Btuh
Latent gain(ducts)		1131	Btuh
Latent gain(infiltration)		1433	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3364	Btuh
TOTAL HEAT GAIN		25130	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2022-09-01

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jim Dahm Res
235 SW Jack Rabbit Ct
Fort White, FL 32038

Project Title:
221041 Dahm
Building Type: User

2022-09-01

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Metal	0.35	N	30.0		14.0	420 Btuh
2	2, NFRC 0.25	Metal	0.35	N	26.7		14.0	373 Btuh
3	2, NFRC 0.25	Metal	0.35	N	18.0		14.0	252 Btuh
4	2, NFRC 0.25	Metal	0.35	N	9.0		14.0	126 Btuh
5	2, NFRC 0.25	Metal	0.35	E	30.0		14.0	420 Btuh
6	2, NFRC 0.25	Metal	0.35	S	30.0		14.0	420 Btuh
7	2, NFRC 0.25	Metal	0.35	S	25.0		14.0	350 Btuh
8	2, NFRC 0.25	Metal	0.35	S	25.0		14.0	350 Btuh
9	2, NFRC 0.25	Metal	0.35	S	30.0		14.0	420 Btuh
10	2, NFRC 0.25	Metal	0.35	W	60.0		14.0	840 Btuh
11	2, NFRC 0.25	Metal	0.35	W	4.5		14.0	63 Btuh
Window Total					288.2(sqft)			4034 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	223		3.55	793 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	128		3.55	453 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	276		3.55	980 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	458 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	40		3.55	142 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	458 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	182		3.55	644 Btuh
Wall Total					1167(sqft)			4141 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		13		16.0	213 Btuh
2	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
3	Insulated - Exterior, n		(0.400)		20		16.0	320 Btuh
4	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
Door Total					93(sqft)			1493Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/D/Shing		(0.025)	38.0/0.0	1892		1.0	1921 Btuh
Ceiling Total					1892(sqft)			1921Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	194.0 ft(perim.)		47.2	9157 Btuh
Floor Total					1892 sqft			9157 Btuh
Envelope Subtotal:								20747 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.22	15136	1.00	55.4		2424 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

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Project Title:
221041 Dahm
Building Type: User

2022-09-01

Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.201)	4662 Btuh
All Zones	Sensible Subtotal All Zones	27833 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27833 Btuh 0 Btuh 27833 Btuh
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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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Jim Dahm Res
235 SW Jack Rabbit Ct
Fort White, FL 32038

Project Title:
221041 Dahm

2022-09-01

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

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	0.25, 0.35	No	No	N		1.5ft	0.5ft	30.0	0.0	30.0	12	12	357	Btuh
2	2 NFRC	0.25, 0.35	No	No	N		1.5ft	0.5ft	26.7	0.0	26.7	12	12	318	Btuh
3	2 NFRC	0.25, 0.35	No	No	N		1.5ft	0.5ft	18.0	0.0	18.0	12	12	214	Btuh
4	2 NFRC	0.25, 0.35	No	No	N		1.5ft	0.5ft	9.0	0.0	9.0	12	12	107	Btuh
5	2 NFRC	0.25, 0.35	No	No	E		1.5ft	0.5ft	30.0	4.5	25.5	12	31	838	Btuh
6	2 NFRC	0.25, 0.35	No	No	S		1.5ft	0.5ft	30.0	30.0	0.0	12	14	357	Btuh
7	2 NFRC	0.25, 0.35	No	No	S		1.5ft	0.5ft	25.0	25.0	0.0	12	14	298	Btuh
8	2 NFRC	0.25, 0.35	No	No	S		1.5ft	0.5ft	25.0	25.0	0.0	12	14	298	Btuh
9	2 NFRC	0.25, 0.35	No	No	S		1.5ft	0.5ft	30.0	30.0	0.0	12	14	357	Btuh
10	2 NFRC	0.25, 0.35	No	No	W		1.5ft	0.5ft	60.0	8.9	51.1	12	31	1677	Btuh
11	2 NFRC	0.25, 0.35	No	No	W		1.5ft	0.5ft	4.5	2.2	2.3	12	31	96	Btuh
	Window Total								288 (sqft)					4918 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
					Cav/Sheath										
1	Frame - Wood - Ext		0.09		13.0/0.0		223.3		2.3		505	Btuh			
2	Frame - Wood - Ext		0.09		13.0/0.0		60.0		2.3		136	Btuh			
3	Frame - Wood - Ext		0.09		13.0/0.0		127.7		2.3		289	Btuh			
4	Frame - Wood - Ext		0.09		13.0/0.0		276.0		2.3		625	Btuh			
5	Frame - Wood - Ext		0.09		13.0/0.0		129.0		2.3		292	Btuh			
6	Frame - Wood - Ext		0.09		13.0/0.0		40.0		2.3		91	Btuh			
7	Frame - Wood - Ext		0.09		13.0/0.0		129.0		2.3		292	Btuh			
8	Frame - Wood - Ext		0.09		13.0/0.0		181.5		2.3		411	Btuh			
	Wall Total								1167 (sqft)			2640 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		13.3		12.0	160	Btuh								
2	Insulated - Exterior		20.0		12.0	240	Btuh								
3	Insulated - Exterior		20.0		12.0	240	Btuh								
4	Insulated - Exterior		40.0		12.0	480	Btuh								
	Door Total								93 (sqft)			1120 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/DarkShingle		0.025		38.0/0.0		1892.0		1.37		2593	Btuh			
	Ceiling Total								1892 (sqft)			2593 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		1892 (ft-perimeter)		0.0		0	Btuh					
	Floor Total								1892.0 (sqft)			0 Btuh			
	Envelope Subtotal:											11271 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

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235 SW Jack Rabbit Ct
Fort White, FL 32038

Project Title:
221041 Dahm

Climate:FL_GAINESVILLE_REGIONAL_A

2022-09-01

Infiltration	Type Natural	Average ACH 0.16	Volume(cuft) 15136	Wall Ratio 1	CFM= 41.5	Load 864 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	3400	Load 4320 Btuh
					Sensible Envelope Load:	16455 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.323)	5311 Btuh
					Sensible Load All Zones	21766 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

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Project Title:
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Climate:FL_GAINESVILLE_REGIONAL_A

2022-09-01

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16455 Btuh
	Sensible Duct Load	5311 Btuh
	Total Sensible Zone Loads	21766 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21766 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1433 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1131 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3364 Btuh
	TOTAL GAIN	25130 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