

Residential System Sizing Calculation

Summary

Project Title:
Collar

, FL

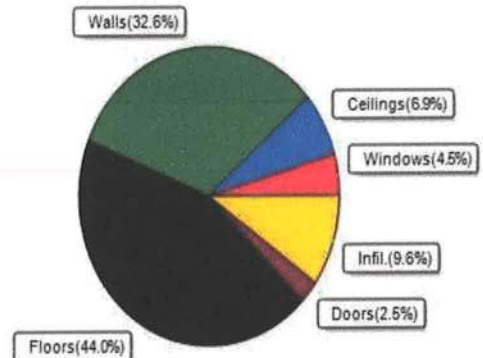
7/25/2022

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	25761	Btuh	Total cooling load calculation	14767	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	85.4	22000	Sensible (SHR = 0.85)	233.5	30600
Heat Pump + Auxiliary(0.0kW)	85.4	22000	Latent	325.1	5400
			Total (Electric Heat Pump)	243.8	36000

WINTER CALCULATIONS

Winter Heating Load (for 2700 sqft)

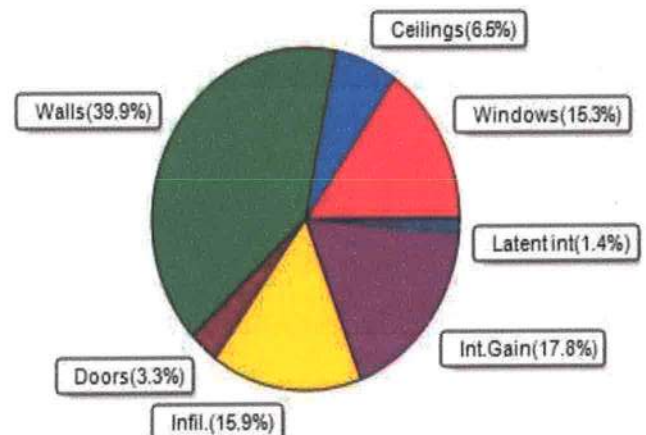
Load component			Load	
Window total	111	sqft	1154	Btuh
Wall total	1769	sqft	8394	Btuh
Door total	40	sqft	640	Btuh
Ceiling total	2700	sqft	1773	Btuh
Floor total	2700	sqft	11328	Btuh
Infiltration	56	cfm	2471	Btuh
Duct loss			0	Btuh
Subtotal			25761	Btuh
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			25761	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2700 sqft)

Load component			Load	
Window total	111	sqft	2253	Btuh
Wall total	1769	sqft	5897	Btuh
Door total	40	sqft	480	Btuh
Ceiling total	2700	sqft	967	Btuh
Floor total			0	Btuh
Infiltration	42	cfm	880	Btuh
Internal gain			2630	Btuh
Duct gain			0	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			13106	Btuh
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			1461	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			200	Btuh
Total latent gain			1661	Btuh
TOTAL HEAT GAIN			14767	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

7-25-22

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Collar

, FL

7/25/2022

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	0.20, 0.26	No	No	No	E	1.5ft.	2.3ft.	36.0	0.0	36.0	9	24	872	Btuh	
2	2 NFRC	0.20, 0.26	No	No	No	N	1.5ft.	2.3ft.	15.0	0.0	15.0	9	9	137	Btuh	
3	2 NFRC	0.20, 0.26	No	No	No	W	1.5ft.	2.3ft.	45.0	0.0	45.0	9	24	1090	Btuh	
4	2 NFRC	0.20, 0.26	No	No	No	S	1.5ft.	2.3ft.	15.0	15.0	0.0	9	11	137	Btuh	
	Excursion														16	Btuh
	Window Total								111 (sqft)				2253 Btuh			
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load						
1	Frame - Steel - Ext													2280	Btuh	
2	Frame - Steel - Ext													750	Btuh	
3	Frame - Steel - Ext													2117	Btuh	
4	Frame - Steel - Ext													750	Btuh	
	Wall Total								1769 (sqft)				5897 Btuh			
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load						
1	Insulated - Exterior													240	Btuh	
2	Insulated - Exterior													240	Btuh	
	Door Total								40 (sqft)				480 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load						
1	Cath/Sngl Assem/Light/Metal													967	Btuh	
	Ceiling Total								2700 (sqft)				967 Btuh			
Floors	Type	U-Value		R-Value		Size		HTM		Load						
1	Slab On Grade													0	Btuh	
	Floor Total								2700.0 (sqft)				0 Btuh			
Envelope Subtotal:														9596 Btuh		
Infiltration	Type	Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load						
	Natural													880	Btuh	
Internal gain		Occupants		Btuh/occupant		Appliance		Load								
														2630	Btuh	
Sensible Envelope Load:														13106 Btuh		
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi)										(DGM of 0.000)		0 Btuh			
Sensible Load All Zones														13106 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
Collar

Climate: FL_GAINESVILLE_REGIONAL_A

, FL

7/25/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	13106 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	13106 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	13106 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1461 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (1.0 people @ 200 Btuh per person)	200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1661 Btuh
	TOTAL GAIN	14767 Btuh

EQUIPMENT

1. PTAC and Room 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(1/2))
 (Omt - compass orientation)



Version 8

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:

Collar

, FL

Building Type: User

7/25/2022

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 0.20	Vinyl	0.26	E	36.0		10.4	374 Btuh
2	2, NFRC 0.20	Vinyl	0.26	N	15.0		10.4	156 Btuh
3	2, NFRC 0.20	Vinyl	0.26	W	45.0		10.4	468 Btuh
4	2, NFRC 0.20	Vinyl	0.26	S	15.0		10.4	156 Btuh
	Window Total				111.0(sqft)			1154 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Steel	- Ext	(0.119)	11.0/0.0	684		4.74	3246 Btuh
2	Frame - Steel	- Ext	(0.119)	11.0/0.0	225		4.74	1068 Btuh
3	Frame - Steel	- Ext	(0.119)	11.0/0.0	635		4.74	3013 Btuh
4	Frame - Steel	- Ext	(0.119)	11.0/0.0	225		4.74	1068 Btuh
	Wall Total				1769(sqft)			8394 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)		20		16.0	320 Btuh
	Door Total				40(sqft)			640Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Cathedral/L/Metal		(0.016)	30.0/30.0	2700		0.7	1773 Btuh
	Ceiling Total				2700(sqft)			1773Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	240.0 ft(perim.)		47.2	11328 Btuh
	Floor Total				2700 sqft			11328 Btuh
	Envelope Subtotal:							23290 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	21600	1.00	56.4		2471 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh
All Zones	Sensible Subtotal All Zones							25761 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Collar
Building Type: User

, FL

7/25/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	25761 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	25761 Btuh

EQUIPMENT

1. Electric Heat Pump	#	22000 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

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Hisense Hisense 18000-BTU Window Room Air Conditioner W/Heat

Item #4350825 Model #AW1822DR3W

★★★★★ 12



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Eaton 1-Gang
Midsize Round Wall
Plate, White

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OVERVIEW

The Hisense AW1822DR3W window air conditioner with heat is best suited for larger rooms (1000 sq ft or less), delivering 18,000 BTU of cooling power and 11,000 BTU of heating power. It provides four modes of comfort—heating, cooling, fan, or dehumidifier—allowing you to choose the comfort you want at any time. The washable air filter is easy to remove and easy to clean, keeping it fresh and free from unwanted odors and bacteria. A convenient remote control puts easy operation right at your fingertips. Backed by a 2-year warranty on both parts and labor.

- 4 Modes (heating, cooling, fan, dehumidifier) for versatile comfort
- Sleek and easy electronic touch controls
- Remote control for easy, convenient operation
- 2-Year warranty provides peace of mind
- Washable, removable filter for quick, easy cleaning
- 4-way air direction provides even, consistent comfort
- Low-noise airflow system ensures quiet operation

Prop65 Warning Label PDF

Energy Guide PDF

Use and Care Manual PDF

CA Residents: Prop 65 Warning(s)

SPECIFICATIONS

Heater Included



ADA Compliant



Thermostat



Suggested Room Size

Over 1000 sq ft

Voice Controlled	×
Works with Sonos	×
Depth (Inches)	25.2
Decibel Rating (Lowest Setting)	55
App Compatibility	N/A
Multi-Directional Air Control	✓
Control Type	Dimmable LED
Fan Only Option	✓
Cord Length (Feet)	6
Window Opening Maximum Width (Inches)	42.1
Lowe's Exclusive	✓
CA Residents: Prop 65 Warning(s)	⚠ Prop 65 WARNING(S)
Decibel Rating (Highest Setting)	57
Smart Compatible	×
Voltage (Volts)	230
Weight (lbs.)	110.2
Window Opening Maximum Height (Inches)	18.5
ENERGY STAR Certified	×
Works with Apple HomeKit	×
Overload Protection	✓
Automatic Shut-Off	✓
Manufacturer Color/Finish	White
Works with SmartThings	×
Noise Rating	Standard (41 decibels or above)
Series Name	N/A
Cooling BTU Rating (BTU)	18000
Window Venting Kit Included	×
Warranty	2-year limited
Color/Finish Family	White

Plug Type	6-20P
Window Opening Minimum Width (Inches)	29.6
Works with Android	×
Wi-Fi Compatibility	×
Works with the Google Assistant	×
Works with Amazon Alexa	×
Works with iOS	×
Sleep Mode	✓
Washable Filter	✓
Low Voltage Compensation	×
Oscillation	✓
Remote Control Included	✓
Width (Inches)	23.6
Window Opening Minimum Height (Inches)	18.5
Sub-Brand	N/A
Dehumidifier Included	✓
Height (Inches)	17.9
Number of Speeds	3
Maximum Coverage Area (Sq. Feet)	1000
Hub Required	×
Bluetooth Compatibility	×
Filter Type	Nylon
Auto Cool	✓
Combined Energy Efficiency Ratio (CEER)	10.7
Safety Listing	UL safety listing
Heating BTU Rating (BTU)	11000
Quiet Mode	×
Timer Included	✓



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