

Project Information

For: Bishop Residence
Columbia County, FL

Notes:

Design Information

Weather: Gainesville, FL, US

Winter Design Conditions

Outside db 33 °F
Inside db 70 °F
Design TD 37 °F

Ventilation Method MJ8

Heating Summary

Structure 31583 Btuh
Ducts (R-6.0) 11113 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 42696 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	2248	2248
Volume (ft ³)	25157	25157
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	134	67

Heating Equipment Summary

Make RHEEM
Trade
Model RP14AY48AJ2N
AHRI ref 214568778

Efficiency 7.5 HSPF2
Heating input
Heating output 45000 Btuh @ 47°F
Temperature rise 26 °F
Actual air flow 1600 cfm
Air flow factor 0.037 cfm/Btuh
Static pressure 0.53 in H2O
Space thermostat
Capacity balance point = 0 °F

Backup:
Input = 12 kW, Output = 42100 Btuh, 100 AFUE

Summer Design Conditions

Outside db 92 °F
Inside db 75 °F
Design TD 17 °F
Daily range M
Relative humidity 50 %
Moisture difference 43 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 23110 Btuh
Ducts (R-6.0) 13781 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 35932 Btuh

Latent Cooling Equipment Load Sizing

Structure 2774 Btuh
Ducts 2775 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 5549 Btuh

Equipment Total Load (Sen+Lat) 41481 Btuh
Req. total capacity at 0.70 SHR 4.3 ton

Cooling Equipment Summary

Make RHEEM
Trade
Cond RP14AY48AJ2N
Coil RH2TY4821STANN
AHRI ref 214568778

Efficiency 14.3 SEER2
Sensible cooling 31850 Btuh
Latent cooling 13650 Btuh
Total cooling 45500 Btuh
Actual air flow 1600 cfm
Air flow factor 0.043 cfm/Btuh
Static pressure 0.53 in H2O
Load sensible heat ratio 0.87

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	36891 Btuh	Entering coil DB:	77.6°F
Outdoor design WB:	75.8°F	Latent gain:	5549 Btuh	Entering coil WB:	63.7°F
Indoor design DB:	75.0°F	Total gain:	42440 Btuh		
Indoor RH:	50%	Estimated airflow:	1600 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	RHEEM	Model:	RP14AY48AJ2N+RH2TY4821STANN		
Actual airflow:	1600 cfm				
Sensible capacity:	31850 Btuh		86% of load		
Latent capacity:	13650 Btuh		246% of load		
Total capacity:	45500 Btuh		107% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	42696 Btuh	Entering coil DB:	68.8°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	RHEEM	Model:	RP14AY48AJ2N+RH2TY4821STANN		
Actual airflow:	1600 cfm				
Output capacity:	45000 Btuh		105% of load	Capacity balance:	0 °F
Supplemental heat required:	0 Btuh			Economic balance:	0 °F

Backup equipment type:	Elec strip				
Manufacturer:		Model:			
Actual airflow:	1600 cfm				
Output capacity:	12.3 kW		99% of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.