

## Project Information

For: Plumb/Windham Residence  
Columbia County, FL

Notes:

## Design Information

Weather: Gainesville Regional, FL, US

### Winter Design Conditions

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

### Summer Design Conditions

Outside db 92 °F  
Inside db 75 °F  
Design TD 17 °F  
Daily range M  
Relative humidity 50 %  
Moisture difference 44 gr/lb

### Heating Summary

Structure 17082 Btuh  
Ducts 3102 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Humidification 0 Btuh  
Piping 0 Btuh  
Equipment load 20184 Btuh

### Sensible Cooling Equipment Load Sizing

Structure 17048 Btuh  
Ducts 4684 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Blower 0 Btuh  
Use manufacturer's data n  
Rate/swing multiplier 0.97  
Equipment sensible load 21123 Btuh

### Infiltration

Method Simplified  
Construction quality Average  
Fireplaces 0

### Latent Cooling Equipment Load Sizing

Structure 2164 Btuh  
Ducts 994 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Equipment latent load 3158 Btuh

	Heating	Cooling
Area (ft <sup>2</sup> )	1500	1500
Volume (ft <sup>3</sup> )	12000	12000
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	90	46

**Equipment Total Load (Sen+Lat)** 24281 Btuh  
Req. total capacity at 0.80 SHR 2.2 ton

### Heating Equipment Summary

Make Trane  
Trade TRANE  
Model 4TWR4030G1  
AHRI ref 8908428

Efficiency 8.5 HSPF  
Heating input  
Heating output 27800 Btuh @ 47°F  
Temperature rise 27 °F  
Actual air flow 933 cfm  
Air flow factor 0.046 cfm/Btuh  
Static pressure 0.53 in H2O  
Space thermostat  
Capacity balance point = 25 °F

### Cooling Equipment Summary

Make Trane  
Trade TRANE  
Cond 4TWR4030G1  
Coil TEM4A0B30S31++TDR  
AHRI ref 8908428

Efficiency 11.5 EER, 14 SEER  
Sensible cooling 22400 Btuh  
Latent cooling 5600 Btuh  
Total cooling 28000 Btuh  
Actual air flow 933 cfm  
Air flow factor 0.043 cfm/Btuh  
Static pressure 0.53 in H2O  
Load sensible heat ratio 0.87

Backup:  
Input = 6 kW, Output = 19781 Btuh, 100 AFUE

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

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### Cooling Equipment

#### Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	21732 Btuh	Entering coil DB:	77.7°F
Outdoor design WB:	75.8°F	Latent gain:	3158 Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	24889 Btuh		
Indoor RH:	50%	Estimated airflow:	933 cfm		

#### Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Trane	Model:	4TWR4030G1+TEM4A0B30S31++TDR		
Actual airflow:	933 cfm				
Sensible capacity:	22400 Btuh	103% of load			
Latent capacity:	5600 Btuh	177% of load			
Total capacity:	28000 Btuh	112% of load	SHR:	80%	

### Heating Equipment

#### Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	20184 Btuh	Entering coil DB:	68.7°F
Indoor design DB:	70.0°F				

#### Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Trane	Model:	4TWR4030G1+TEM4A0B30S31++TDR		
Actual airflow:	933 cfm				
Output capacity:	27800 Btuh	138% of load		Capacity balance:	25 °F
Supplemental heat required:	0 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec strip				
Manufacturer:		Model:			
Actual airflow:	933 cfm				
Output capacity:	5.8 kW	98% of load	Temp. rise:	50 °F	

Meets all requirements of ACCA Manual S.