

Project Information

For: COOLWATER/MCNUTT 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 4180 Btuh
Ducts (R-6.0) 452 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 4633 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	224	224
Volume (ft ³)	1792	1792
Air changes/hour	0.67	0.35
Equiv. AVF (cfm)	20	10

Heating Equipment Summary

Make GREE ELECTRIC APPLIANCES INC. OF ZHUHAI
Trade GREE
Model 4LIV09HP230V1AO
AHRI ref 210278963

Efficiency 8.8 HSPF2
Heating input 10000 Btuh @ 47°F
Heating output 30 °F
Temperature rise 303 cfm
Actual air flow 0.065 cfm/Btuh
Air flow factor 0 in H2O
Static pressure
Space thermostat
Capacity balance point = 15 °F

Backup:
Input = 1 kW, Output = 4333 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 6667 Btuh
Ducts (R-6.0) 501 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 6981 Btuh

Latent Cooling Equipment Load Sizing

Structure 708 Btuh
Ducts 97 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 806 Btuh

Equipment Total Load (Sen+Lat) 7787 Btuh
Req. total capacity at 0.80 SHR 0.7 ton

Cooling Equipment Summary

Make GREE ELECTRIC APPLIANCES INC. OF ZHUHAI
Trade GREE
Cond 4LIV09HP230V1AO
Coil 4LIV09HP230V1AH
AHRI ref 210278963
Efficiency 11.3 EER2, 19.5 SEER2
Sensible cooling 7280 Btuh
Latent cooling 1820 Btuh
Total cooling 9100 Btuh
Actual air flow 303 cfm
Air flow factor 0.042 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.90

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

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Design TD 37 °F

Ventilation Method MJ8

Heating Summary

Structure 4437 Btuh
Ducts (R-6.0) 427 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 4864 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	208	208
Volume (ft ³)	2045	2045
Air changes/hour	0.56	0.29
Equiv. AVF (cfm)	19	10

Heating Equipment Summary

Make GREE ELECTRIC APPLIANCES INC. OF ZHUHAI
Trade GREE
Model 4LIV09HP230V1AO
AHRI ref 210278963

Efficiency 8.8 HSPF2
Heating input 10000 Btuh @ 47°F
Heating output 30 °F
Temperature rise 303 cfm
Actual air flow 0.062 cfm/Btuh
Air flow factor 0 in H2O
Static pressure
Space thermostat
Capacity balance point = 16 °F

Backup:
Input = 1 kW, Output = 4680 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 7084 Btuh
Ducts (R-6.0) 478 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 7365 Btuh

Latent Cooling Equipment Load Sizing

Structure 294 Btuh
Ducts 93 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 388 Btuh

Equipment Total Load (Sen+Lat) 7752 Btuh
Req. total capacity at 0.80 SHR 0.8 ton

Cooling Equipment Summary

Make GREE ELECTRIC APPLIANCES INC. OF ZHUHAI
Trade GREE
Cond 4LIV09HP230V1AO
Coil 4LIV09HP230V1AH
AHRI ref 210278963
Efficiency 11.3 EER2, 19.5 SEER2
Sensible cooling 7280 Btuh
Latent cooling 1820 Btuh
Total cooling 9100 Btuh
Actual air flow 303 cfm
Air flow factor 0.040 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.95

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Columbia County, FL

Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	7168	Btuh	Entering coil DB:	75.6°F
Outdoor design WB:	75.8°F	Latent gain:	806	Btuh	Entering coil WB:	62.8°F
Indoor design DB:	75.0°F	Total gain:	7973	Btuh		
Indoor RH:	50%	Estimated airflow:	303	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: GREE ELECTRIC APPLI Model: 4LIV09HP230V1AO+4LIV09HP230V1AH
Actual airflow: 303 cfm
Sensible capacity: 7280 Btuh 102% of load
Latent capacity: 1820 Btuh 226% of load
Total capacity: 9100 Btuh 114% of load SHR: 80%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	4633	Btuh	Entering coil DB:	69.7°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: GREE ELECTRIC APPLI Model: 4LIV09HP230V1AO+4LIV09HP230V1AH
Actual airflow: 303 cfm
Output capacity: 10000 Btuh 216% of load
Supplemental heat required: 0 Btuh
Capacity balance: 15 °F
Economic balance: -99 °F

Backup equipment type: Elec strip
Manufacturer: Model:
Actual airflow: 303 cfm
Output capacity: 1.3 kW 94% of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.

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Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	7561	Btuh	Entering coil DB:	75.6°F
Outdoor design WB:	75.8°F	Latent gain:	388	Btuh	Entering coil WB:	62.8°F
Indoor design DB:	75.0°F	Total gain:	7949	Btuh		
Indoor RH:	50%	Estimated airflow:	303	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: GREE ELECTRIC APPLI Model: 4LIV09HP230V1AO+4LIV09HP230V1AH
Actual airflow: 303 cfm
Sensible capacity: 7280 Btuh 96% of load
Latent capacity: 1820 Btuh 470% of load
Total capacity: 9100 Btuh 114% of load SHR: 80%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	4864	Btuh	Entering coil DB:	69.7°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: GREE ELECTRIC APPLI Model: 4LIV09HP230V1AO+4LIV09HP230V1AH
Actual airflow: 303 cfm
Output capacity: 10000 Btuh 206% of load
Supplemental heat required: 0 Btuh
Capacity balance: 16 °F
Economic balance: -99 °F

Backup equipment type: Elec strip
Manufacturer: Model:
Actual airflow: 303 cfm
Output capacity: 1.4 kW 96% of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.