



Manual S Compliance Report
Entire House
Air Ducks Heating & Air, Inc

Job:
Date: Dec 29, 2017
By:

2601 NW 121st Ave, Gainesville, Fla 32653 Phone: 352-215-4624 Fax: 352-519-5409 Email: airducksac@gmail.com Web: www.airducksac.com

Project Information

For: Flowers addition, Chris Tanner

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	15886	Btuh	Entering coil DB:	77.2°F
Outdoor design WB:	76.3°F	Latent gain:	3124	Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	19011	Btuh		
Indoor RH:	50%	Estimated airflow:	663	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Trane	Model:	4TXK1624A10N0A+4MXW1624A10N0A	
Actual airflow:	663	cfm		
Sensible capacity:	0	Btuh	0% of load	
Latent capacity:	0	Btuh	0% of load	
Total capacity:	0	Btuh	0% of load	SHR: 0%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	21613	Btuh	Entering coil DB:	67.0°F
Indoor design DB:	68.0°F					



Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Trane	Model:	4TXK1624A10N0A+4MXW1624A10N0A	
Actual airflow:	663	cfm		
Output capacity:	23000	Btuh	106% of load	Capacity balance: 0 °F
Supplemental heat required:	0	Btuh		Economic balance: 0 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	663	cfm		
Output capacity:	6.3	kW	100% of load	Temp. rise: 0 °F

Meets are all requirements of ACCA Manual S.



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Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Header Information

Contractor:

Mechanical license:

Building plan #:

Home address (Street or Lot#, Block, Subdivision): , Entire House

REQUIRED ATTACHMENTS
Manual J1 Form (and supporting worksheets):
or MJ1AE Form* (and supporting worksheets):
OEM performance data (heating, cooling, blower):
Manual D Friction Rate Worksheet:
Duct distribution sketch:

ATTACHED
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐
Yes ☐ No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 33 °F
Indoor temperature: 68 °F
Total heat loss: 21613 Btuh

Summer Design Conditions

Outdoor temperature: 92 °F
Indoor temperature: 75 °F
Grains difference: 47 gr/lb @ 50% RH
Sensible heat gain: 16378 Btuh
Latent heat gain: 3221 Btuh
Total heat gain: 19599 Btuh

Building Construction Information

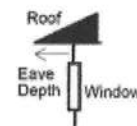
Building

Orientation: Front Door faces North
North, East, West, South, Northeast, Northwest, Southeast, Southwest

Number of bedrooms: 0
Conditioned floor area: 1467 ft²
Number of occupants: 2

Windows

Eave overhang depth: 0 ft
Internal shade: none
Blinds, drapes, etc.
Number of skylights: 0



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: Split ASHP
Furnace, Heat pump, Boiler, etc.
Model: Trane
4TXK1624A10N0A+4MXW1624A10N0A
Heating output capacity: 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 21613 Btuh

Cooling Equipment Data

Equipment type: Split ASHP
Air Conditioner, Heat pump, etc.
Model: Trane
4TXK1624A10N0A+4MXW1624A10N0A
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Heating cfm: 663
Cooling cfm: 663
Static pressure: 0 in H₂O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: 663 cfm
Equipment design ESP: 0 in H₂O
Total device pressure losses: 0 in H₂O
Available static pressure (ASP): 0 in H₂O
Longest supply duct: 0 ft
Longest return duct: 0 ft
Total effective length (TEL): 0 ft
Friction rate: 0 in/100ft
Friction Rate = ASP ÷ (TEL x 100)
Duct Materials Used
Trunk duct:
Branch duct: Sheet metal

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name: _____

Contractor's signature: _____

Date: _____

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for MJ1AE Form based on Abridged Edition Checklist



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Load Short Form Entire House Air Ducks Heating & Air, Inc

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Project Information

For: Flowers addition, Chris Tanner

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	35	17	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	47		

HEATING EQUIPMENT

Make Trane
Trade
Model 4TXK1624A10N0A
AHRI ref 8858487
Efficiency 9 HSPF
Heating input
Heating output 23000 Btuh @ 47°F
Temperature rise 32 °F
Actual air flow 663 cfm
Air flow factor 0.031 cfm/Btuh
Static pressure 0 in H2O
Space thermostat
Capacity balance point = 0 °F

Backup:
Input = 6 kW, Output = 21613 Btuh, 100 AFUE

COOLING EQUIPMENT

Make Trane
Trade
Cond 4TXK1624A10N0A
Coil 4MXW1624A10N0A
AHRI ref 8858487
Efficiency 16 SEER
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 663 cfm
Air flow factor 0.042 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.84

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Room1	1480	21613	15887	663	663
Entire House	1480	21613	15887	663	663
Other equip loads		0	0		
Equip. @ 0.97 RSM			15410		
Latent cooling			3124		
TOTALS	1480	21613	18534	663	663

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



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Project Summary
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Project Information

For: Flowers addition, Chris Tanner

Notes:

Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

Outside db	33 °F
Inside db	68 °F
Design TD	35 °F

Summer Design Conditions

Outside db	92 °F
Inside db	75 °F
Design TD	17 °F
Daily range	M
Relative humidity	50 %
Moisture difference	47 gr/lb

Heating Summary

Structure	18114 Btuh
Ducts	3499 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	21613 Btuh

Sensible Cooling Equipment Load Sizing

Structure	11478 Btuh
Ducts	4408 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	15410 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2218 Btuh
Ducts	906 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	3124 Btuh

	Heating	Cooling
Area (ft²)	1467	1467
Volume (ft³)	14800	14800
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	111	57

Equipment Total Load (Sen+Lat)	18534 Btuh
Req. total capacity at 0.70 SHR	1.8 ton

Heating Equipment Summary

Make	Trane
Trade	
Model	4TXK1624A10N0A
AHRI ref	8858487
Efficiency	9 HSPF
Heating input	
Heating output	23000 Btuh @ 47°F
Temperature rise	32 °F
Actual air flow	663 cfm
Air flow factor	0.031 cfm/Btuh
Static pressure	0 in H2O
Space thermostat	
Capacity balance point = 0 °F	

Cooling Equipment Summary

Make	Trane
Trade	
Cond	4TXK1624A10N0A
Coil	4MXW1624A10N0A
AHRI ref	8858487
Efficiency	16 SEER
Sensible cooling	0 Btuh
Latent cooling	0 Btuh
Total cooling	0 Btuh
Actual air flow	663 cfm
Air flow factor	0.042 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0.84

Backup:
Input = 6 kW, Output = 21613 Btuh, 100 AFUE

Bold/italic values have been manually overridden

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