



Manual S Compliance Report

Entire House

Air Ducks Heating & Air, Inc.

Job:
Date: Mar 30, 2021
By:

2601 NW 76th Ave, Gainesville, Fla 32653 Phone: 352-215-4624 Email: Airducksac@gmail.com Web: Airducksac.com License: CAC1817288

Project Information

For: Tanner, Stovall resd
182 Drew Feagle Ave, Fort White, Fla 32038

Cooling Equipment

Design Conditions

Outdoor design DB:	91.9°F	Sensible gain:	24465	Btuh	Entering coil DB:	77.2°F
Outdoor design WB:	76.2°F	Latent gain:	4062	Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	28527	Btuh		
Indoor RH:	50%	Estimated airflow:	1167	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Trane	Model:	4TWR4036G1+TEM4A0B36S31++TDR	
Actual airflow:	1167	cfm		
Sensible capacity:	24500	Btuh	100% of load	
Latent capacity:	10500	Btuh	259% of load	
Total capacity:	35000	Btuh	123% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.0°F	Heat loss:	29534	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:	4TWR4036G1+TEM4A0B36S31++TDR	
Actual airflow:	1167	cfm		
Output capacity:	34400	Btuh	116% of load	Capacity balance: 29 °F
Supplemental heat required:	0	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1167	cfm		
Output capacity:	8.4	kW	97% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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

Form
RPER 1
15 Mar 09

Header Information

Contractor:	Air Ducks Heating & Air, Inc.	REQUIRED ATTACHMENTS	ATTACHED
Mechanical license:	CAC1817288	Manual J1 Form (and supporting worksheets):	Yes ☐ No ☐
		or MJ1AE Form* (and supporting worksheets):	Yes ☐ No ☐
		OEM performance data (heating, cooling, blower):	Yes ☐ No ☐
Building plan #:		Manual D Friction Rate Worksheet:	Yes ☐ No ☐
		Duct distribution sketch:	Yes ☐ No ☐
Home address (Street or Lot#, Block, Subdivision):	182 Drew Feagle Ave, Entire House		

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 33 °F
Indoor temperature: 68 °F
Total heat loss: 29534 Btuh

Summer Design Conditions

Outdoor temperature: 92 °F
Indoor temperature: 75 °F
Grains difference: 47 gr/lb @50% RH
Sensible heat gain: 25248 Btuh
Latent heat gain: 4192 Btuh
Total heat gain: 29440 Btuh

Building Construction Information

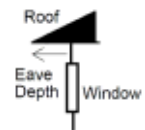
Building

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

Number of bedrooms: 0
Conditioned floor area: 1724 ft²
Number of occupants: 4

Windows

Eave overhang depth: 0 ft
Internal shade: blinds
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
4TWR4036G1+TEM4A0B36S31++TDR
Heating output capacity: 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 28540 Btuh

Cooling Equipment Data

Equipment type: Split ASHP
Air Conditioner, Heat pump, etc.
Model: Trane
4TWR4036G1+TEM4A0B36S31++TDR
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Heating cfm: 1167
Cooling cfm: 1167
Static pressure: 0.50 in H₂O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow:	1167 cfm	Longest supply duct:	331 ft	Duct Materials Used
Equipment design ESP:	0.50 in H ₂ O	Longest return duct:	66 ft	Trunk duct: Fiberglass board, Sheet metal
Total device pressure losses:	0 in H ₂ O	Total effective length (TEL):	397 ft	Branch duct: Round flex vinyl
Available static pressure (ASP):	0.50 in H ₂ O	Friction rate:	0.126 in/100ft	

Friction Rate = ASP ÷ (TEL × 100)

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



Load Short Form

Entire House

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Design Information

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

HEATING EQUIPMENT

Make Trane
Trade TRANE
Model 4TWR4036G1
AHRI ref 201763659

Efficiency 8.2 HSPF
Heating input
Heating output 34400 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 1167 cfm
Air flow factor 0.040 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 29 °F

COOLING EQUIPMENT

Make Trane
Trade TRANE
Cond 4TWR4036G1
Coil TEM4A0B36S31++TDR
AHRI ref 201763659

Efficiency 14.0 EER, 11.5 SEER
Sensible cooling 24500 Btuh
Latent cooling 10500 Btuh
Total cooling 35000 Btuh
Actual air flow 1167 cfm
Air flow factor 0.048 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 0.86

Backup:
Input = 8 kW, Output = 28540 Btuh, 100 AFUE

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Kitchen	266	4832	5638	191	269
Dining	171	1707	2194	67	105
Greatroom	228	4665	4968	184	237
Bed 2	172	4635	2354	183	112
Bath	56	1146	808	45	39
Laundry	49	629	691	25	33
Master	154	3010	2230	119	106
Master bath	136	3272	1240	129	59
wic	42	0	0	0	0
Hall	60	0	0	0	0
Bedroom 3	248	4719	3739	186	178
Mec room	24	0	0	0	0
1/2 bath	42	919	604	36	29
up stairs	36	0	0	0	0

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



Entire House	d	1684	29534	24465	1167	1167
Other equip loads			0	0		
Equip. @ 0.97 RSM				23707		
Latent cooling				4062		
TOTALS		1684	29534	27769	1167	1167

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



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Project Summary

Entire House

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182 Drew Feagle Ave, Fort White, Fla 32038

Notes:

Design Information

Weather: Gainesville Rgnl, 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	22868 Btuh
Ducts	6666 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	29534 Btuh

Sensible Cooling Equipment Load Sizing

Structure	16172 Btuh
Ducts	8293 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	23707 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2310 Btuh
Ducts	1752 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	4062 Btuh

	Heating	Cooling
Area (ft²)	1724	1724
Volume (ft³)	14283	14283
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	90	48

Equipment Total Load (Sen+Lat)	27769 Btuh
Req. total capacity at 0.70 SHR	2.8 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR4036G1
AHRI ref	201763659
Efficiency	8.2 HSPF
Heating input	
Heating output	34400 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	1167 cfm
Air flow factor	0.040 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 29 °F	
Backup:	
Input = 8 kW, Output = 28540 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR4036G1
Coil	TEM4A0B36S31++TDR
AHRI ref	201763659
Efficiency	14.0 EER, 11.5 SEER
Sensible cooling	24500 Btuh
Latent cooling	10500 Btuh
Total cooling	35000 Btuh
Actual air flow	1167 cfm
Air flow factor	0.048 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.86

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



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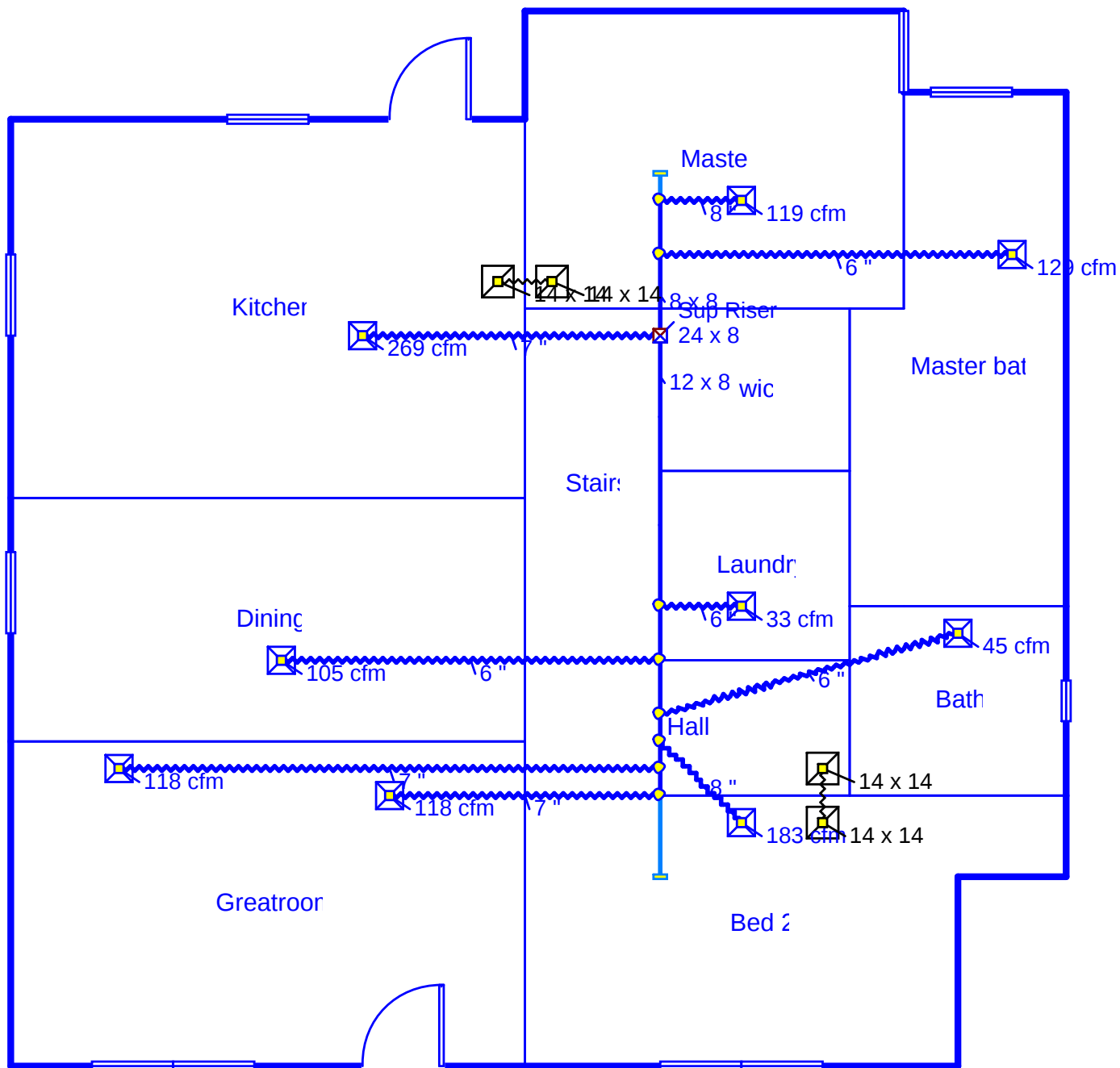
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Job #:
Performed for:

Tanner
182 Drew Feagle Ave
Fort White, Fla 32038

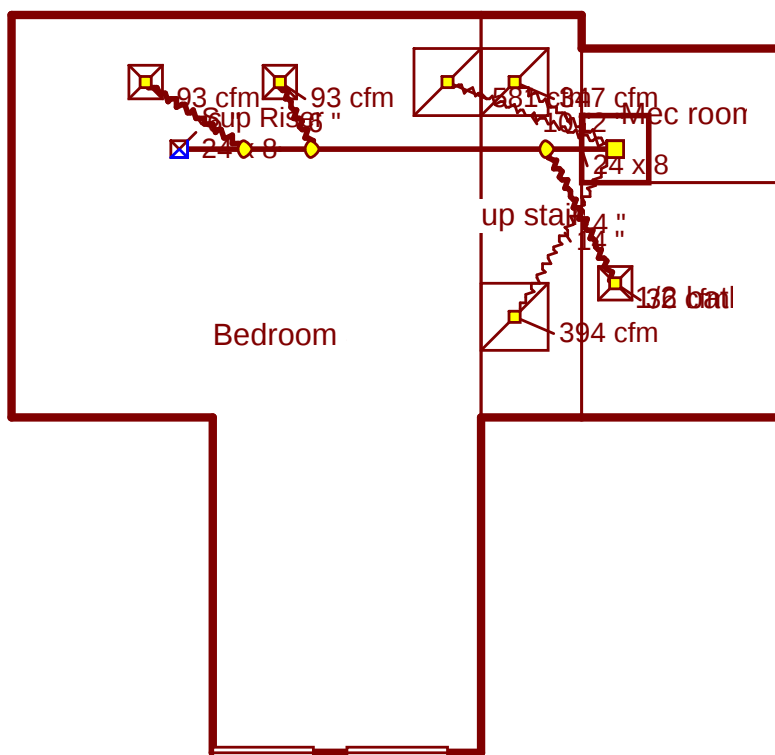
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Top floor



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Duct System Summary

Entire House

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Job:
Date: Mar 30, 2021
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Project Information

For: Tanner, Stovall resd
182 Drew Feagle Ave, Fort White, Fla 32038

	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Supply / return available pressure	0.417 / 0.083 in H ₂ O	0.417 / 0.083 in H ₂ O
Lowest friction rate	0.126 in/100ft	0.126 in/100ft
Actual air flow	1167 cfm	1167 cfm
Total effective length (TEL)		397 ft

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
1/2 bath	h 919	36	29	0.212	4.0	0x0	VIFx	6.5	190.0	st1
Bath	h 1146	45	39	0.128	6.0	0x0	VIFx	50.4	275.0	st2
Bed 2	h 4635	183	112	0.135	8.0	0x0	VIFx	44.2	265.0	st2
Bedroom 3	h 2359	93	89	0.218	6.0	0x0	VIFx	11.2	180.0	st1
Bedroom 3-A	h 2359	93	89	0.226	6.0	0x0	VIFx	14.6	170.0	st1
Dining	c 2194	67	105	0.126	6.0	0x0	VIFx	51.0	280.0	st2
Greatroom	c 2484	92	118	0.132	7.0	0x0	VIFx	61.0	255.0	st2
Greatroom-A	c 2484	92	118	0.140	7.0	0x0	VIFx	52.0	245.0	st2
Kitchen-A	c 5638	191	269	0.193	7.0	0x0	VIFx	36.0	180.0	st1
Laundry	c 691	25	33	0.127	6.0	0x0	VIFx	38.0	290.0	st2
Master	h 3010	119	106	0.150	8.0	0x0	VIFx	33.0	245.0	st3
Master bath	h 3272	129	59	0.141	6.0	0x0	VIFx	41.0	255.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	1167	1167	0.126	875	14.7	8 x 24	RectFbg	
st2	Peak AVF	505	525	0.126	788	10.3	8 x 12	ShtMetl	st1
st3	Peak AVF	248	165	0.141	558	7.6	8 x 8	ShtMetl	st1



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Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb7	0x 0	444	581	65.4	0.127	1066	10.0	0x 0		VIFx	
rb6	0x 0	394	239	65.8	0.126	369	14.0	0x 0		VIFx	
rb3	0x 0	329	347	63.6	0.130	442	12.0	0x 0		VIFx	